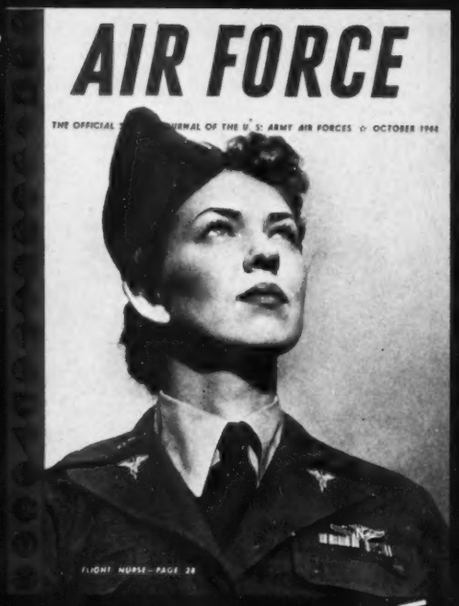
East Engin.
Library

AIR FORCE

THE OFFICIAL SERVICE JOURNAL OF THE U. S. ARMY AIR FORCES ☆ OCTOBER 1944

FLIGHT NURSE—PAGE 28



AIR FORCE has a new cover this month. We hope you agree that the new design with all the AAF patches better reflects the spirit that permeates the Army Air Forces in every corner of the globe. That spirit, which has kept pace with our growing strength, is a very real thing. It is a combination of teamwork and skill, courage and loyalty, and above all, pride in a magnificent fighting organization. Whether you push a pencil or spin a prop, pack a parachute or pilot a B-29, wherever you are in the AAF, whatever you do, you're part of one of the greatest outfits in the history of fighting men. It has been the job of AIR FORCE to tell you all it can about that outfit. We think the new cover design will help us do that job.

DEPOSITED BY THE
UNITED STATES OF AMERICA

Rendezvous

OCT 31

Who Is He?

Dear Editor:

. . . I would like to have some information concerning the cover of the August issue of AIR FORCE. Who is the soldier, or paratrooper to be exact? I think he is a relation of mine. . . .

Pvt. Clayton Evans, Honolulu

Dear Editor:

. . . The picture on the cover is that of my brother, 1st Sgt. H. E. Cooper before he went into the invasion. . . .

L. R. Cooper, Hollywood, Calif.

Dear Editor:

. . . The mother of Pfc. William B. Anderson would like to have an original print of the photograph and any information available. Pfc. Anderson is reported missing in action since June 6 and he was with the paratroopers that invaded Normandy. The family and friends feel sure that the picture is that of young Anderson. . . .

Mrs. Jas. W. Griffin, Defuniak Spgs., Fla.

Dear Editor:

. . . I believe he is my brother. He is at present missing in action since D-day in France. . . .

Pvt. A. Pushharawicz, Tucson, Ariz.

Dear Editor:

. . . The cover of your August issue features an airborne soldier who, I believe, is my brother. He is Special Service Officer, 1st. Lt. John F. Devereux, somewhere in Italy. . . .

Helen M. Devereux, Monroe, La.

Dear Editor:

. . . He bears a striking resemblance to Pvt. George T. Trotman, of Rapid City, S. D., a close friend of my family's. Pvt. Trotman as we know from the official casualty list was killed in action on D-day in Normandy. . . . .

Marilynne M. Robertson, Meridian, Miss.

Unfortunately, we don't know the name of the paratrooper. The picture was taken during the last few minutes before invasion and in the excitement no captions were recorded. If anyone in his outfit can identify this soldier, we'll be glad to print his name. Ed.

Law of Averages?

Dear Editor:

. . . A lot of fellows in this flying racket talk about playing out the string, or bucking the law of averages. They feel that luck runs out, and that's why you see a 'Fifty and Bust Club' in every squadron in the air force. Well, I hope I'm not sounding old-timerish or philosophical about it, but I look at it this way. Every mission in itself

(Continued on Page 46)

Vol. 27 No. 10 October 1944

AIR FORCE

THE OFFICIAL SERVICE JOURNAL OF THE U. S. ARMY AIR FORCES

BRIEF

Assignment—Home 2
General Harmon answers some important questions for combat returnees.

Air Mastery Over France 4
A report on our air activities during the Allied march on the Reich.

Fighter Control—Nerve Center of Battle *S/Sgt. Mark Murphy* 6
How our planes in Europe are sent to the right place at the right time.

Little Planes With a Big Punch *Herbert Ringold* 8
If it's a tough job over rough territory, they give it to the Grasshoppers.

Get Wise *Lt. Col. George S. Richardson* 11
Take a look at these accident reports; their lessons may save your neck.

Airborne Army *Maj. Charles D. Frazer* 12
Organization and potentialities of the new Allied command in Europe.

The Invasion of Noemfoor 14
A picture account of air operations in this Southwest Pacific action.

The B-29 and You *Maj. Luther Davis* 16
Expecting duty with B-29s? Here are some notes on what to expect.

Hard Facts About Income Tax *Brig. Gen. L. H. Hedrick* 19
If you think military status exempts you, read this and think again.

The Pearly Gates 21
What happens when the combat boys enter Miami's 36th St. Airport.

China Combat *Capt. Robert B. Hotz* 24
How the 14th Air Force has taken a toll of advancing Jap invaders.

Under Pressure *Col. Donald L. Putt* 26
The mechanical aspects of pressurization in high-altitude flying.

Flight Nurse *Charlotte Knight* 28
In a popularity contest among wounded GIs, she would win hands down.

The Philippines 31
Some facts for our men who will take part in the islands' liberation.

Our Pigeon Air Force 36
With courage and endurance, these birds are serving the AAF well.

Bulldozers and Bullets *Maj. Herbert O. Johansen* 38
7th Air Force engineers on Saipan joined in the shooting as a sideline.

Our New Helicopters 53
Here are three more aircraft to add to our whirligig family.

Coconut Bombing *Lt. Col. Howard S. Ellmore* 56
How our A-20s drop their eggs from tree-top level in the SWPA.

DEPARTMENTS

Rendezvous	1	The Library	50
AIR FORCE Quiz	18	On the Alert	51
This Is Your Enemy	22	On the Line	54
Intercom	30	Flying Safety	58
Technique	41	Cross Country	60
Training Aids	47	In This Issue	61
October in the AAF	50	Shooting the Breeze	64

AIR FORCE (formerly the Air Forces News Letter) is printed monthly by authority of AAF Reg. No. 5-6 (6 Sept. 1942), and with the approval of the Bureau of the Budget, Executive Office of the President. AIR FORCE is published by the U. S. Army Air Forces at the AIR FORCE Editorial Office, 101 Park Avenue, New York 17, N. Y., U. S. A., for use of personnel of the Army Air Forces and allied activities, and is not to be republished in whole or in part without written permission. Direct communication with the AIR FORCE Editorial Office has been authorized on matters of editorial content and distribution. Director: Lt. Col. James H. Straubel, A. C. Tel., MUrray Hill 5-1951; Teletype No. NY 1-2530; Liaison offices at Hq. AAF, Washington, D. C., (Tel., Republic 6700, Ext. 74362) and Wright Field, Dayton, Ohio, (Tel., Kenmore 7111, Ext. 29135). AIR FORCE is primarily a medium for the exchange of ideas and information among Army Air Forces personnel, and the opinions expressed by individual contributors do not necessarily reflect the official attitude of the Army Air Forces or of the War Department.

ASSIGNMENT • • HOME

What happens to a man when he comes back from overseas is of the utmost importance to him—and to the Army Air Forces. Already air force men are returning at the rate of several thousand a month. More will follow as replacements are sent to relieve veterans, or as combat units are shifted from one theater to another. To get the true facts and to spike some wild rumors, AIR FORCE submitted a series of questions to Maj. Gen. Hubert R. Harmon, Commanding General of the new Personnel Distribution Command (AFPDC). Most of the questions came from men still overseas. Here they are with General Harmon's answers.

Just what is the AAFPDC? It is the giant employment agency of the AAF. Through this Command pass all unassigned personnel of the AAF. Just as the business of the Air Service Command is one of supply, and the job of the Training Command to prepare crews for combat, so the main purpose of AAFPDC is the handling, as individuals, of all personnel going overseas as well as those returned from combat areas. The five main functions of AAFPDC are: 1) Redistribution of returned Air Force personnel, combat and non-combat (flying and ground). 2) All Air Force Convalescent Hospitals. 3) Overseas Replacement Depots. 4) Demobilization. 5) Recruiting of men for the post-war, permanent Air Force.

Does this new Command decide when I come home? AAFPDC has nothing to do with the length of time a man serves overseas before he is returned to the United States. That is a theater prerogative and requirements vary widely.

When do I become a part of the AAFPDC? If you are in the zone of the interior and have been scheduled for overseas duty, you become a part of the AAFPDC as soon as you arrive at an Overseas Replacement Depot. If you are in a combat area, as soon as you reach a port of debarkation in the U.S.A., unless you have been injured and are enroute to an Army general hospital or a regional hospital. In that case you become a part of the AAFPDC when you have been sent from the general or regional hospital to an AAF Convalescent hospital. AAF has liaison offices at all General and Regional hospitals who look after the interests of all AAF personnel.

Does this include battle casualties? Yes. AAFPDC includes casualties as well as casuals. These casualties are taken care of in the manner outlined in the preceding paragraph.

What happens to me when I reach the port of debarkation? If you are a casual returned for redistribution, you are picked up by a liaison officer of the AAFPDC, quickly briefed, and given orders directing you to a Redistribution Station with a 21-day delay enroute. If you are a casualty, you are sent to an Army general hospital and thence to an AAF Convalescent Hospital.

Can I go home as soon as I arrive in the U. S.? Yes, unless you are a casualty. If you have been returned for redistribution, you will be sent to a reception station nearest the point where you wish to spend your leave.

How much time will I have at home? Each man gets a 21-day delay enroute while traveling from the Port of Debarkation to the Redistribution Station, plus a certain allowance for travel time.

Do I have to spend my 21 days at home? No. A man can spend his 21 days any place in the U. S. provided his decision is made overseas, so that his debarkation point may be anticipated and he may be placed in the proper group for forwarding to the U. S.

Where do I go after my 21 days? You report to the Redistribution Station named in your orders, which is usually the one nearest the place where you took your delay enroute.

How long will I be at the Redistribution Station? From one to two weeks. Actually the work required takes only a few days, but it is deliberately spread out to give a returnee further rest and an opportunity to orient himself.

Are only flying personnel handled in this manner? Every effort is being made to handle both flying personnel and ground crews in present redistribution facilities. However, should unexpected peak loads occur, it may be necessary temporarily to improvise emergency facilities for redistribution of ground crews.

Can I take my wife with me to the Redistribution Station? Yes, to the limit of the capacity of the facilities. Married couples will be billeted and messed together in the same manner as if they were staying at a private hotel. Activities are arranged for the wives as well as for the husbands. Arrangements must be made in advance through Post liaison officers.

How expensive will it be to have my wife with me? The cost is the same as the government would charge to billet you, which means that it is as inexpensive as possible.

May I bring my child or children? No. Unfortunately there is not enough room at the Redistribution Stations. The amount of work required to house and feed children is too great.

What happens to me at the Redistribution Station? You will be examined, processed, evaluated, and then given your new assignment.

What sort of medical examination do I get? As complete and thorough as possible. It is done by Medical Corps and Dental Corps officers who are not only the best possible experts but who for the most part are also returnees from combat and know your problems.

Can I change my classification and get a different type of military assignment? In some instances you can, but the majority of cases will remain in the same MOS (military occupation specialty).

Why, under ordinary circumstances, can't I change my MOS? If there is a demand for men of your training and ability, and you are still physically qualified to continue in that type of work, you will remain in your MOS. For example, there is still a demand in the AAF for radio operators. Despite your having served overseas as a radio operator for 24 months you will not ordinarily be permitted to become an administrative clerk. The war

(Continued on Page 52)

PROCEDURE AT A REDISTRIBUTION STATION

PRELIM. PHASE
ORIENTATION
(Explanation of the rotation program and the procedures to be followed in the return to duty.)
PERSONNEL RECORDS
(All papers brought up to date; back pay accomplished; earned medals and decorations presented, etc.)
1st PHASE
STATION SURGEON
(Complete medical examination to determine fitness for duty; dental, optical checkups, etc.)
2nd PHASE
CLASSIFICATION
(Personal interviews to determine background, experience and training for further duty assignment.)
3rd PHASE
STATION ASSIGNMENT AND SHIPPING INSTRUCTIONS
CLEARING AND MOVEMENT
INDOCTRINATION FOR FURTHER DUTY
Explanation of current status of all U. S. Air Forces and Commands.
DUTY
REST CAMP
SICK LEAVE
CONVALESCENT CENTER
GENERAL HOSPITAL
SEPARATION FROM ARMY

Our airmen had the skies virtually to themselves as the Battle of Europe roared toward Germany

AIR MASTERY OVER EUROPE

BY CABLE FROM AIR FORCE CORRESPONDENTS IN THE ETO

By mid-September, it was obvious that the German air force could not contend in France. When Allied soldiers clambered from the hedgerows of Normandy and Brittany to launch major breakthroughs, they moved virtually at will as far as enemy air attack was concerned. The Germans had to withdraw their slender store of fighter planes from Alencon and Angers, centers of the Nazi forward air force since D-day, and from then on opposition was extremely slight. The Luftwaffe could not harass effectively Allied ground troops and armored columns, could not fight the U. S. 9th Air Force or British 2nd Tactical Air Force supporting the land armies, could not provide helpful cover for Von Kluge's 7th Army as it struggled to get out of the Falaise pocket, could not prevent Allied planes from ceaselessly bombing and strafing German transport columns, barges and railways, could not offer resistance to heavy bomber formations ranging the length and breadth of Germany, and could not provide the High Command with adequate reconnaissance and intelligence.

In the south of France the Luftwaffe was not even brought to action. Our landings were made without any aerial resistance whatever. When they needed it most, the Germans found their air force rendered impotent by concurrent losses at the front—totaling more than 3,600 aircraft in the first 70 days of the European campaign—and blows against their manufacturing and service centers in the Reich.

Intense attacks on the Nazi aircraft industry were continued by USSTAF bombers throughout August. At the same time there took place a systematic assault of perhaps even greater importance—destruction of German oil.

The oil offensive, like that against aircraft plants, had begun months back. Heavy damage had already been visited on German refineries, synthetic petroleum plants and oil storage dumps, but in August this assault by the 8th and 15th Air Forces reached a crescendo. While the 8th was burning out oil tanks and severely damaging buildings in such centers as Hamburg and Zeitz, the 15th was attacking plants at Ploesti, Dubova in Czechoslovakia and others in Germany. Reconnaissance showed complete inactivity in the Ploesti area even before the Balkan disintegration and capture of the city.

The attack on August 24 by these two air forces was an example of their terrific striking power. This was a day on which some 1,300 bombers of the 8th Air Force and 600 from the 15th were out, plus over 1,000 escorting fighters.

Visual pinpoint bombing was almost universal. The Forts and Liberators brought heavy damage to oil production centers at Merseburg in Prussia and Brux in the Sudetenland, two of the largest synthetic producers, as well as to many other refineries and dumps throughout Axis Europe. Photo-reconnaissance afterward showed very severe gutting or tar treatment plants, boiler rooms, tanks, injector systems and other facilities, with many fires still raging. During August, the 8th Air Force alone bombed 26 oil plants in Europe and made 35 attacks on oil storage dumps.

This entire oil offensive, coupled with demolition of hundreds of tank cars in transit by fighters and fighter-bombers, was a serious setback to German hopes of continued resistance.

While the Allied ground offensive was gathering momentum in the first weeks of August, aircraft of both the strategic and tactical air forces were harassing the Nazis at every possible point. The 9th Air Force, in immediate support of the land armies, was launching Marauder and Havoc attacks on highway and rail bridges, railway centers and junctions, heavy gun batteries and similar targets. Fighters and fighter-bombers were flaying troop concentrations, tanks, artillery emplacements and every conceivable form of military transport. In the week prior to August 14, 9th fighter-bombers flew more than 7,500 sorties over the battle area.

Meanwhile, to the north, 8th Air Force fighters were doing a lively business. They had taken time out from escort duties to strafe and bomb the Germans who were attempting to move reinforcements and equipment southward through Brussels toward Metz and other key centers. From August 7 to 13, except for one day, Thunderbolts, Mustangs and Lightnings directed an intense, large scale effort against this rail and highway traffic destined for the battlefields in France.

The results were impressive. During that single period they hit and disabled 884 locomotives, destroyed 1,631 railway cars and damaged nearly 6,000, destroyed 598 trucks and damaged 446, destroyed 461 oil cars and damaged 320, and destroyed 94 ammunition cars, plus other vehicles.

So enthusiastic were they over the damage done by their bombs and armor piercing incendiaries that they extended the work to include canal barges, gun positions, ammunition dumps, radio towers, airfields, rail tunnels, factories and marshalling yards. When they had finished that week of activity, there was hardly a German wheel moving in Belgium and surrounding areas. The month's total damage wrought by 8th fighter groups was staggering. Locomotives disabled numbered more than 2,200. More than 14,000 railroad cars had been destroyed or damaged, as had some 2,000 trucks and highway vehicles.

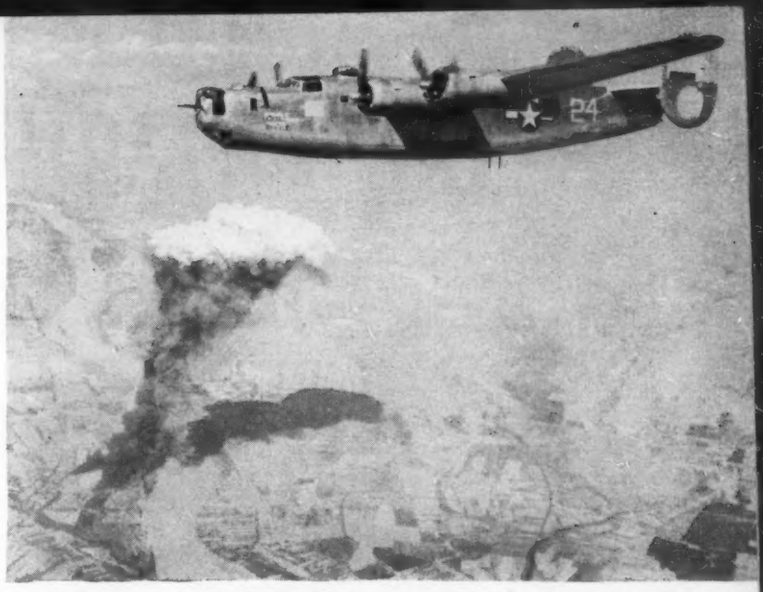
This effort had not been inexpensive. Casualties in low-level or ground attack are generally far heavier than in air combat, and this assault had met with fierce antiaircraft interference. But it had been a spectacular achievement.

Down on the Riviera the full weight of the Mediterranean Allied Air Forces—some 14,000 combat airmen—was being directed for five solid days against the proposed landing area between Marseilles and Nice. Heavies bombed

roads and bridges and military installations on the coast and up the Rhone valley. Mediums, fighters and fighter-bombers struck at radio and radar stations, gun emplacements and a wide variety of other targets. Transport aircraft crews and glidermen were ready to carry spearhead units of paratroopers and airborne infantry. On August 14 General Eisenhower issued his Order of the Day and calamity came to the Germans from every quarter. A new invasion of France began with enormous success on the Mediterranean Coast and the Allied armies in the Normandy-Brittany area burst northward and eastward with the plunging, uncontrollable vigor of giant broncos.

The General's order had asked "every airman to make it his direct responsibility that the enemy is blasted unceasingly by day and by night and is denied safety either in fight or flight."

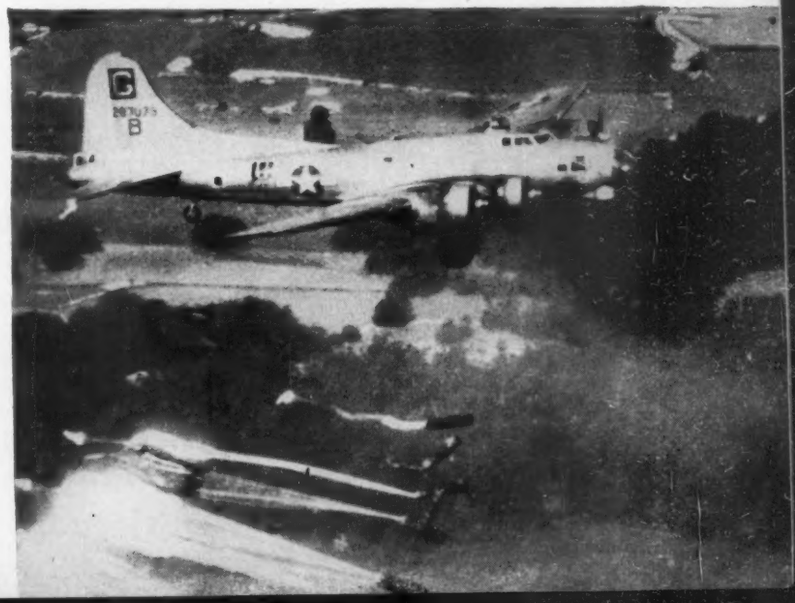
That request describes ensuing operations. Heavy bombers of USSTAF—which earlier had made notable attacks



Nazi oil goes up in smoke as Liberators of the Mediterranean Allied Air Forces smash Hungarian oil refinery at Budapest.

Rubble and lots of it was all that remained of this German strong point after a concentrated visit by 9th Air Force fighter-bombers.

Vital supplies are parachuted to waiting Maquis, as an 8th Air Force B-17 reaches its drop zone over the French countryside.



on such targets as the experimental station at Peenemunde, the important industrial complex at Brunswick, the Arado and Adam Opel armament works and many other areas, in addition to the oil and aircraft offensive—probed deeper and deeper into the heart of the enemy's war machine.

Targets bombed in varied assaults by B-17s and B-24s from mid-August included the I. G. Farben chemical plant at Ludwigshaven and electrical equipment factories at Mannheim, ammunition storage buildings at Zwischenahn, the Seibel aircraft works at Halle and the Junkers factory at Dessau, the chemical works at Ober Radach, bridges across the Meuse and the armament works at Weimar. The latter attack on August 24 not only destroyed or damaged 10 workshops but also blasted Gestapo offices and garages. Within four straight days ending August 28, the 8th Air Force itself hit 10 important German cities. Throughout

(Continued on Page 62)

FIGHTER CONTROL...

nerve center of battle

by S/Sgt. Mark Murphy
AIR FORCE Overseas Staff

BY WIRELESS—

THE war in Western Europe moves so fast that probably the only place in this sector where the situation of the moment is known is in the fighter control tents of the 9th Tactical Air Command, 9th Air Force.

These are the nerve centers of aerial activity. Here all the communications of modern war bring the stages of battle before your eyes.

In a fighter control center not far from the Belgian border, this day in early September, men cling to telephones that are connected to land lines, FM and VHF circuits. These networks synchronize Allied movements in the air and on the ground. Here the blow-by-blow directions are given to 9th Air Force planes blasting the Germans out of the way of our advancing armies. Here Royal Air Force, U. S. Navy, French Forces of the Interior and Army anti-aircraft liaison officers work with AAF officers and enlisted men at the many maps and boards in the tent.

The maps here are ahead of those used by the various Army groups, even the ones at Supreme Allied Headquarters. Some distance to the north and east and south our tank columns are pushing through Belgium, and as they shove forward, P-51s, P-47s, and P-38s work with them. In other areas which the columns won't get to until tomorrow or next week, or maybe won't even have to touch, the fighter-bombers are plastering troop concentrations, knocking out guns, harassing retreating armor and trucks, blasting bridges, jabbing at the enemy and keeping him off balance for the knockdown punch the lads on the ground are set to give.

All of this air war, this tactical support of ground troops, is being handled by some quiet officers sitting at tiers of desks, hanging on telephones, scribbling notes on pieces of paper, and etching maps and status boards that show how the war stands that moment with the ground forces and with the 9th Air Force.

The task of directing this enormous effort from the disposition of airbases in France and England to the final pointing out of one truck for one airplane to hit, is a complicated one. Fighter control may be down at the bottom of the page on the command organization chart, but it constitutes the heart of air support operations today. In this particular situation, fighter control's chief job is to watch the planes as they fly, put them on target, take them off while they are in flight and send them to a more important mission, and bring them home again.

Take a recent Sunday, for instance. It was one of those bright days, which are becoming more rare as autumn and winter advance, and all groups were out. Our armies were on the move and liaison officers were continually changing the bombline on the maps. By nightfall the line would run off the boards. A sergeant was watching disconsolately. "Every damn two days I have to make a new map," he said.

The place gave an impression of quiet activity. People have to keep quiet because often the radio telephones are very faint. The first squadrons had been up some time and the chief controller, a first lieutenant sweating out his captaincy, called down to a major, "Joe said he found some enemy stuff just west of Mons." "Is he sure?" the major asked. "That's this side of the bombline."

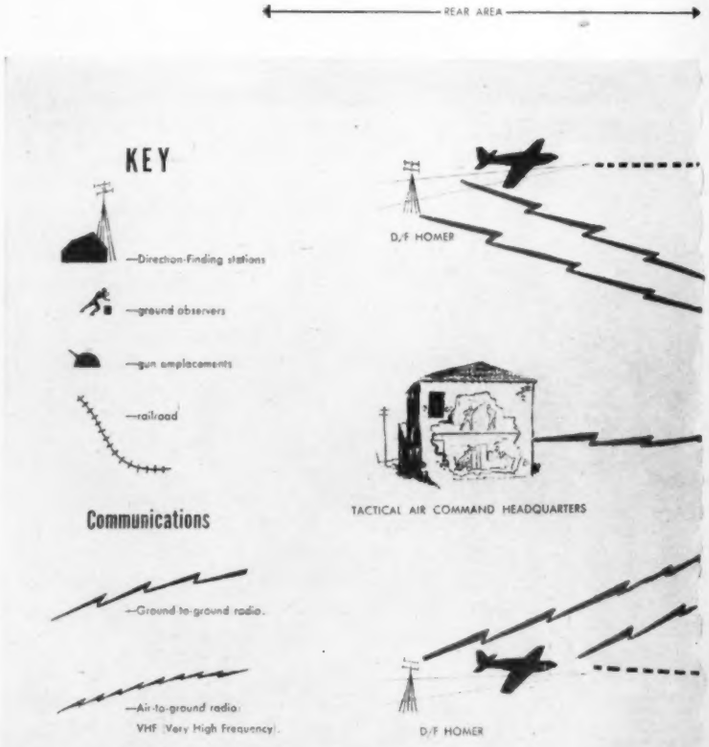
"I told him to be positive and he went down and looked at them and then attacked," the lieutenant said.

"Damn it, make sure! Our troops are all over that area. Somebody's liable to get hurt that way."

"I sent *Mark* over to take another look and he also is checking," the lieutenant said. "Tell them to be positive," said the major.

"Make positive identification," the chief controller called down to a controller at a tier of telephones and radio gadgets below him to get in touch with *Mark*, the radio code name of fighter group.

"Tell him to make positive identification before doing anything."



Here's how controllers direct the planes that are blasting a path into Germany

Fifteen minutes later *Mark* had taken his look and reported enough enemy trucks and horse-drawn equipment for an army.

"He says he went down and looked, and that the stuff has crosses on it," the controller said.

Squadrons hung over the ground procession at Mons until new squadrons came in and briefed them. Every few minutes, word went out from fighter control that identification must be positive. Later the Army liaison officer reported that the stuff was enemy, although in a few places it was only a few hundreds of yards from our own armor which was on the move.

Lt. Jack Russell, one of the chief controllers, looked at the status board of the groups and squadrons and casually diverted some of their missions. The schedule on which they were flying had been made in the office of Maj. Gen. E. R. Quesada, commanding the 9th Tactical Air Command.

"While on duty as controllers, a lot of captains and lieutenants here," Lt. Russell said, "have more real authority than many colonels."

Over the VHF phone one could hear a faint voice, that of a squadron leader, "Get your can up here," it was saying. "For once damn it, get your can up here where you belong!"

He didn't repeat the message so it was assumed that a pilot had brought his plane up to its proper place in the formation.

As the day went on, some of the controllers told me about the activities of the wing and the squadron which runs fighter control.

"It was like working in a store with sales slips," Capt. Vance H. Taylor said of the big break-through days.

"We were handling from 1,300 to 1,800 sorties a day. A fellow would mention a target and I would hand a slip of paper to another man and then in a few minutes back would come the slip of paper reading 'target destroyed'."

After the breakthrough at St. Lo and the working over of the Falaise pocket, the American, Canadian and British armies swarmed over Europe, overrunning Germany's new empire as the Nazis had run over Europe four years before —and fighter-bombers of the 9th were leading the way.

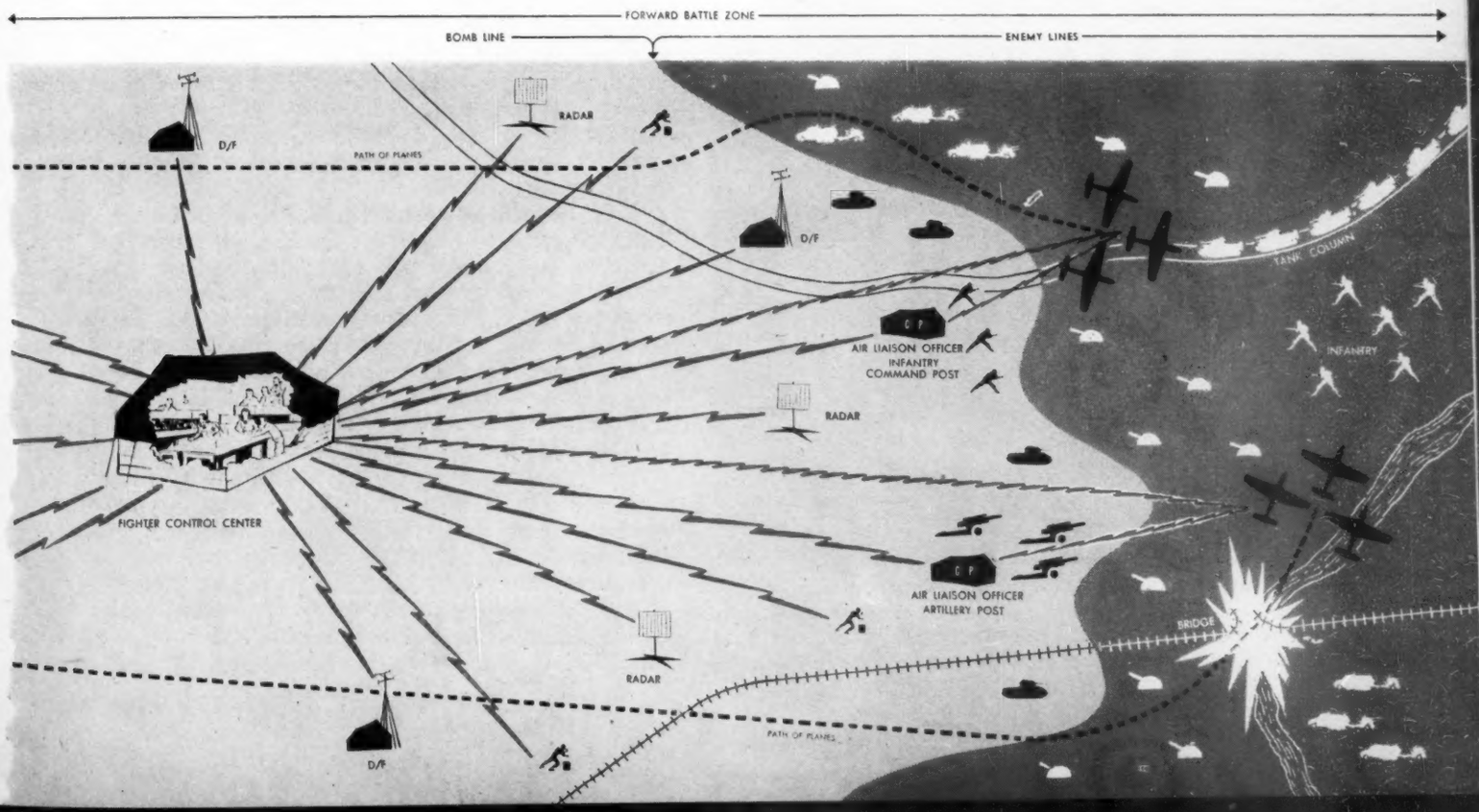
The operation of fighter control appears relatively simple when you see it. Planes are in the air and their pilots call back by radio to tell what they are doing, what they see and where they are. Or if they are not certain exactly where they are, controllers can easily find out by means of a radio "fix" through Direction Finding stations. Men receiving this information think it over and if things seem to be doing all right they say "Roger" and get off the air. In case there is something new for the planes to do the pilots are told about it, like this Sunday stuff at Mons for example. But actually, fighter control represents one of the most complex air warning and communications nets in warfare, and its men are among the most able and best trained in the Army.

That's why, without batting an eye, a captain will depart from the orders set down by a major general and send airplanes far from the places they were originally assigned to go. In case the decision calls for a definite change of policy, the captain naturally consults higher authorities, but 9th Air Force leaders have considerable confidence in their controllers. Moreover, the latter have utmost confidence in themselves and in the pilots with whom they work.

Capt. Lucius C. Tirey, who came in on the late shift, began talking of reconnaissance. "You've got to remember one group, a tactical reconnaissance outfit," he said. "You've seen them flying around, two-plane teams, one maybe flying level while the other goes up on one wing and then on the other to look things over. Those boys are beautiful pilots and beautiful soldiers, and the flying they do would knock you out. From daylight to dark, they are the best there is on recognition, and when they tell you something is enemy, it's enemy. If they don't know it's enemy they won't tell you it is. And when the weather is bad, they go out on weather reconnaissance flights just to find out how bad things really are."

Maj. Joseph J. Cody, senior controller, came over and leaned against a wall. They say he is usually leaning against something or sitting on something. "The boys get so

(Continued on Page 63)



Liaison planes such as the one in the top photo carry supplies from big bases in the rear to isolated outposts (center) in jungle areas where transport planes can not land. Evacuation of wounded from front line positions is another big assignment for these little planes.

LITTLE PLANES WITH

Officially their mission is liaison work; actually they are cargo carriers, ambulance planes and even bombers.

By Herbert Ringold

AIR FORCE Staff

THE L-4 putt-putted along at 70 miles an hour over, around and between the 5,000-foot Burmese mountains. The non-commissioned pilot consulted his compass—the sum total of his navigational instruments—and pushed his light plane down on the tree tops. He was over enemy territory. His combined firepower was a .45 caliber revolver which he brought along purely for morale purposes. He wore no parachute. The case of dynamite in the rear section did not add to his peace of mind as the monsoon winds bounced his plane perilously close to the mountain crags. Part of his cargo included caps for the dynamite, but he carried them in his pocket so that he could jettison them quickly in case of trouble.

He found his destination—900 feet of open ground, which under no stretch of the imagination could be called a landing field. It was a rice paddy—the only piece of ground within 50 miles that was not covered with dense foliage and giant trees. The pilot was on a double mission of mercy. He was carrying supplies to a group of Merrill's Marauders who were fighting behind the Japanese lines in northeastern Burma. On his return trip, he was to evacuate a wounded man.

The pilot approached the rice paddy, pancaked down and used the full length of the field to make his landing. He stepped out of his plane and looked for the men who were to meet him there. No one was around. The day before, this area had been held by more than a hundred men. Suddenly, a lieutenant poked his head out of the bushes and yelled, "Start running, buddy. The Japs are 200 yards behind you." The pilot took off into the jungle and the enemy was finally beaten back.

This liaison pilot wasn't especially surprised at the proximity of the enemy. For six months, his outfit had been operating right under the noses of the Japs, evacuating wounded, carrying supplies, doing reconnaissance and performing a variety of other functions in support of the ground troops who were fighting deep in the jungle country. Even if the ground forces could have marched safely to the nearest source of medical attention, it would have taken at least two weeks to batter their way through the jungle terrain. The light planes made the trip in a couple of hours.

Liaison squadrons are a comparatively new addition to the Army Air Forces. The first squadron went into a combat theater in spring of 1943. Several squadrons are on duty in the European and Mediterranean theaters, two are in Burma, a few in China, and additional squadrons are being organized at the present time. Officially, the mission of the AAF liaison squadrons is to provide theater and task force headquarters and ground force units with general liaison, mes-

A BIG PUNCH

senger and courier service in areas behind the front lines of enemy troops. Actually, liaison squadrons are performing functions in combat theaters which will never be found on any activation chart.

Three types of planes—the L-1, L-4 and L-5—were used. The L-1, no longer in production, has a cruising speed of approximately 100 mph, a 280-horsepower Lycoming engine and a landing speed of about 36 mph. The L-4, now used primarily by Field Artillery, has a cruising speed of 75 mph, a 65-horsepower Continental engine and a landing speed of approximately 38 mph. The L-5, now the plane officially assigned to AAF liaison squadrons, cruises at about 110 mph, lands at approximately 50 mph and has a 185-horsepower Lycoming engine.

Each liaison squadron has 7 officer pilots and 32 noncommissioned pilots, of whom 4 are master sergeants, 12 tech sergeants and 16 staff sergeants. The AAF light plane operations are not to be confused with the use of liaison squadrons by the artillery. AAF liaison squadrons are attached to the various air forces where they may be assigned to the ground force units for over-all liaison functions. Their planes are piloted by air force personnel. Artillery liaison planes are flown by Artillery personnel and are used only in connection with the operations of the Artillery.

To demonstrate the potential performance of the light planes, two 14th Air Force officers actually flew the Hump in liaison planes, a procedure which originally had been recommended against when the question came up as to the best method of moving these planes from India into China.

Having heard of the difficulties of hopping the Hump, Maj. Fred Welsh and Capt. Edward Maher decided to do it in a pair of L-5s. They took off from a base in Assam and landed at an advanced field in China. Major Welsh reports, "We flew by the seat of our pants just as the old barnstormers used to do. Of course, we made a thorough check with the China National airlines and the Air Transport Command, so we knew the low spots and the passes to hit.

"We got as high as we could—9,000 feet—and negotiated most of the passes. We had to drop to 300 feet some of the time, just skimming the tree tops. Coming through the main pass, we had to fly single file, but we got through without any trouble."

In Burma, there were two separate light plane operations. One squadron attached to the 10th Air Force, originally headquartered at Ledo, India, supported the Chinese-American forces in India which included Merrill's Marauders. The other light plane force was part of the Air Commandos, under the combined direction of Cols. Philip Cochran and John Alison who coordinated their activities with the late Maj. Gen. O. C. Wingate of the British Armed Services.

Even before the commando operations began, the liaison planes went into action in response to a desperate call for help from the British ground troops in southern Burma. A large British force had been surrounded and trapped in the Arakan section and was in the immediate danger of being wiped out. Many hundreds of the British had been wounded and there was no way to bring them out of the jungles. Seven light planes and nine sergeant pilots were sent down and in 15 days they successfully evacuated 700 casualties. The missions were so important that the British provided Spitfire cover for the light planes. In all of their later operations, however, the liaison planes never had any fighter protection.

The use to which the "little" planes were put in the commando strike may be considered a typical example of their general capabilities. General Wingate, speaking of these activities, said, "Without you men and your aircraft, this campaign could not have hoped to be a success."

That a type of plane which heretofore had been considered nothing more than a message carrier and a "toy airplane" should receive such high praise is a tribute to all concerned, who found new ways to solve old problems. One important difficulty faced was the problem of keeping supplies flowing into the ground forces, who were completely isolated in the jungles. Liaison planes formed a team with C-47s, and handled a problem which neither type of plane could have done alone. The transports came in to the large back bases with a full load of supplies and the light planes dispersed this materiel to the small advanced outposts spread throughout the jungle.

The light planes flew into paddy fields located right in the heart of the Japanese territory. They took off and landed over the heads of the defending enemy. One pilot got 21 holes in his plane when he turned left on a take-off rather than veering to the right, away from the Japs. It was not unusual for the opposing forces to occupy both ends of the same landing field. Liaison pilots actually had to fight [illegible] for possession of their aircraft. On one occasion, the Japs advanced and captured some of the [illegible] pilots turned themselves into ground troops, joined the British forces and recaptured their planes.

Most maintenance was handled by the liaison pilots. A roving crew of mechanics went from outpost to outpost doing the heavy work and reclaiming junked parts, but usually a light plane pilot flew his plane, fought to protect it and took care of it himself.

Colonel Cochran said, "Our light planes did everything. They evacuated wounded and did one of the finest jobs I have ever seen. They were cargo carriers, transporting everything from barbed wire and bedding rolls to mortars and mortar shells. We used them to help direct our ground activities, to observe enemy movements, and a couple of times we made bombers out of them and got excellent results. If we needed to round up the ranking officers from various points in the jungle for important conferences, the light planes did the job."

Exact figures are not available, but Maj. Gen. George Stratemeyer, commanding general of the Eastern Air Command, estimates the light planes flew 5,000 to 8,000 sorties during the commando operation. They evacuated in excess of 2,000 casualties. In his official report to General Arnold, General Stratemeyer said, "Most spectacular perhaps of all the air commando aircraft has been the performance of 100 light planes attached to the group."

During the commando operation, the light planes performed many different functions, the most important of which include:

Evacuating wounded. The L-1 and the L-5 normally carry only two men each. But in response to the urgent situation,

it was routine for the L-5 to carry three, and the L-1, four passengers. On occasion, the L-1 carried five men. There was no other way to bring out the wounded. As Colonel Alison says, "The men were very glad to sacrifice comfort for safety. A wounded man behind enemy territory is a worried man. The knowledge that the light planes were evacuating the casualties was a great help to general morale. Those planes came into postage stamp fields of 500 feet and less. You'd look at the heavily loaded planes and wonder how in the world they could do it. There was jungle on all sides of the strips and we lost a couple of planes when they crashed into the trees on their take-offs. Because the fields were so small, only a few planes at a time could come in, so we ran a regular shuttle system with some planes making three and four trips a day."

Carrying supplies. The official specifications of the L-5 indicate that it was built to carry approximately 250 pounds of cargo. Colonel Cochran commented, "Our normal load was twice that. And usually more." The liaison planes carried supplies attached to each wing and, when no landing fields were available, dropped the materiel to the troops below by use of parachutes. Whenever possible, however, landings were made to take advantage of the full cargo capacities of the light planes. On one occasion, the liaison planes saved the day for a British force which had been isolated and cut off from the main body. The planes were loaded down with mortars, mortar shells, rations and barbed wire, and flown right into the fighting zone. They landed with sufficient supplies to enable the British to hold off the Japs until an airstrip could be built to handle the big transports.

Bombardment. It seems completely incredible that liaison planes can be turned into bombardment aircraft. The Commandos attached 100-pound bombs to the wings of the L-5, and a 250-pound bomb to the belly of the L-1, and bombed the enemy from low altitudes. Once, a force of Japanese took cover under a bridge and fought a strong delaying action from their protected position. Two men took off in an L-5, equipped themselves with hand grenades, swooped down on the top of the bridge and tossed their grenades out of the doors at the Japs under the bridge.

Spotting targets for bombers. The light planes were also used to drop smoke bombs on enemy targets, directing the heavy bombers to the strike point. One man sat in back of an L-5 with smoke bombs which he tossed overboard when the plane flew in at zero altitude. The heavies then bombed on the smoke. This trick was pulled only four times because, as someone explained, "It got so that it just wasn't healthy coming into a Jap target a few feet over the ground in a plane going no faster than a hundred miles an hour."

Transport of personnel. The nearest the light planes came to performing their regular liaison function was when they were used to gather up the various commanders who were at different spots in the jungle and bring them to a central meeting point. Usually, small groups of men were fighting in isolated sections spread out over 100 miles. If, for example, General Wingate wanted to talk to his brigadiers, light planes would round them up within an hour. It is useless to estimate how long it would have taken these men to come in without liaison planes—it just couldn't be done. With the light planes, Colonels Cochran and Alison could visit all of their units within a short time and be advised of the current tactical situation. Otherwise, because communications were haphazard, they couldn't even guess.

Reconnaissance. In the Burmese jungles, it was often impossible to know who was a mile in front of you without going up in a light plane and taking a look. The liaison planes worked in close coordination with the advancing ground forces by reconnoitering the territory and dropping notes to the advancing columns with information as to the Japs' strength and position. Light planes were used to keep a close and constant watch on all trails leading into the landing strips to detect the existence of any Japanese patrols.

Perhaps the most unusual of all the operations was performed by a helicopter which was used in conjunction with the liaison planes, marking the first time that a helicopter was ever employed in combat. A light plane carrying three slightly wounded passengers was forced down behind the Jap lines with an engine failure. There wasn't sufficient cleared ground in the vicinity for another light plane to land, so the helicopter came into action.

Initially, notes were dropped from a liaison plane, advising the stranded party to make its way up a ridge away from the Japs who were thought to be in the neighborhood. The men hid for four nights in the jungle, being kept alive by supplies of food, water and medical supplies dropped by the light aircraft. Meanwhile, a YR-4, two-place helicopter, piloted by Lt. Carter Harman, took off from Lalaghat and flew by stages to Taro, crossing a 6,000-foot mountain range en route. At Taro, an extra gasoline tank was installed for the 135-mile flight to a landing strip behind the enemy lines.

The stranded men were again directed by dropped notes to go to a nearby jungle clearing. The helicopter was flown to a light plane strip about five miles from the paddy clearing and there received a wig-wag signal from a liaison plane that the party was ready to be rescued. Lieutenant Harman made two flights to the clearing, returning each time with two men. Additional rescue missions were made by the helicopter, including the pick-up of two more casualties, one of whom was a litter patient who had to be strapped on the outside of the helicopter. Colonel Cochran, in a letter to Colonel Alison who had returned to the States, wrote, "Today the egg beater went into action and the damn thing acted like it had good sense."

Recent experiments by the Wright Field engineers with light plane operations include the use of a microphone so that liaison pilots can deliver a vocal message from as high as 3,000 feet, eliminating the necessity of note dropping. Colonel Cochran summed up the activities of the light planes in Burma by saying, "They did everything but talk." Now, they can actually do that. ☆

Lost Parachutes

Nos. 42,9643, 42,6689, seat type; return to transportation officer, 27th Sub-Depot Supply Officer, Eglin Field, Fla., Attention of Lt. C. F. McCoy, Electronics Section.

No. 42-1037371, seat type, return to Operations Officer, 369th Fighter Group, AAB DeRidder, La.

Nos. 40-306, 41-33439, 42-486128, seat type; return to Base Operations, Jackson Army Air Base, Jackson, Miss.

No. 42-343465, seat type; return to Lt. F. D. Butterfield, AAF Pilot School (Basic), Marana Field, Tuscon, Ariz.

GET WISE

Here are a few of the easily avoided mishaps that are costing the AAF many lives, limbs and manhours. Get wise: you can pay for mistakes like these with your life

By LT. COL. GEORGE S. RICHARDSON, MC
9th Air Force

Case I. Some people should never be given a knife. They're bound to hurt themselves. Take the GI in Italy, for instance. Instead of plunging his issue knife into a German belly, he sent it into his own. Not intentionally, of course. He wasn't committing hara-kiri. He was merely trying to make a hole in some leather. Placing the butt of the knife on the table, he pressed the leather against the point. Darned if that knife didn't go right through the leather and into the soldier's abdominal wall. To repair the damage, a surgical unit required an hour—an hour of valuable time which could have been given men wounded in action.

Case II. Perhaps the four officers, who were riding a jeep in Normandy, couldn't read. It's hard to believe they would be foolish enough to disregard the sign which in plain English warned: "Shoulders are not free of mines." The quartet was traveling a rural road, when for some reason they decided to turn back. The driver swung out on the shoulder of the road and all that settled to earth after the explosion was dust. The grave registration men are still looking for the dog tags.

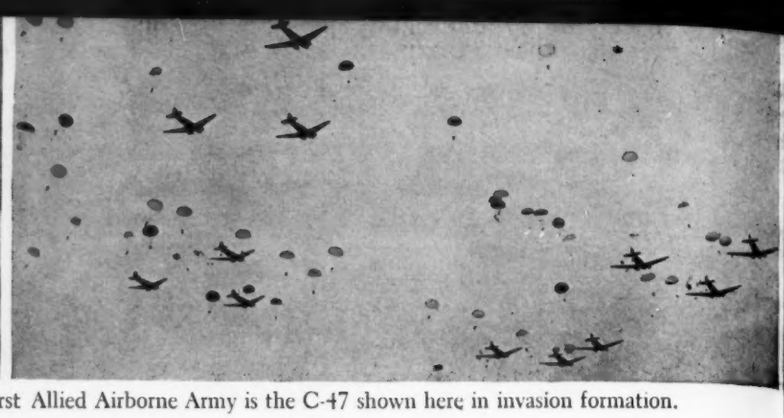
Case III. The ground crewman was a good-looking 19-year-old kid. But he isn't good-looking any more, because he didn't use his head. He decided to make a cigarette lighter from a 20 mm shell, figuring the gadget would be a nice souvenir. After removing the projectile, he found the wadding was packed tightly. Picking at it with his knife didn't seem to do much good, so he lightly tapped the base of the shell. Sometime later, he woke up in a field hospital. He couldn't see, and his hands and ear hurt him. He didn't realize immediately that both eyes had been blinded by casing fragments, that both hands and part of one ear were gone and that his face would always carry blue scars from the shower of exploding powder particles. He knows all about it now. He knows also that fooling with ammunition is dangerous. But he got wise too late.

Case IV. Clean clothes are nice, but there's a limit to the price a man should pay to get them. A line chief in Africa had a whale of a laundry bill—the torture of infected burns for days and nights on end, six months in the hospital and ugly scars for life. Cleaning facilities weren't very good in the desert, so the line chief washed his coveralls and pants in a bucket of gasoline. It was unfortunate that a spark from a cigarette touched off the fumes, but lucky for him that a B-24 crew was willing to risk a flight through a sandstorm to get him to a general hospital in time to save his life. He's home now, but he'd rather be back on the line, keeping those planes in shape to speed the victory.

Case V. "Don't point" is a rule which applies to off-duty gun-handling as well as it does to social behavior. Every soldier has been told time and again never to point a gun at anyone he doesn't intend to shoot. An AAF man in France disregarded the rule to his sorrow. Playing "soldier" with a group of French youngsters, he "charged" at them with his carbine. Apparently the safety was off, for the piece was fired, and a 15-year-old boy was shot through the abdomen. The kid lived only because a field hospital was at hand and surgeons were able to operate within a few minutes. But while the boy's life hung in the balance, the soldier was disconsolate. He still feels pretty unhappy about the whole business.

Case VI. Booby traps are not always in obvious places. Six enlisted men in Normandy found that out. To escape the unceasing rain, they took refuge in a building of one of the small towns. They should have known better, for the area had just been occupied. There were no Lugers lying around, no rifles stacked in a corner, no pictures on the wall, no trip wires or steps. Nor did they find any thermite candy nor bars of the soap that explodes and blows your hands off. They felt they were pretty safe. But in cleaning up the place, they moved some "junk" which did the trick. The burial detail found enough pieces to make some sort of a showing. All the men were insured, but their folks thought a lot more of them than they did of $10,000.

Case VII. Tense, white and self-reproachful, the Service Group lad came into the field hospital. He said he wished "someone would give him a good, swift kick." But that wouldn't help a bit. A kick wouldn't replace his right hand. When the emergency dressing was removed, the hand looked just like pictures you've seen of Jap hands shattered by suicidal grenade explosions. It was a grenade that did the job on the Service Group boy, too. But it wasn't thrown by the enemy. The "dud" he had picked up proved to be alive. He was flown to a general hospital where the hand and part of his forearm were amputated. The boys in his outfit said: "Too bad about Joe. A good guy like him didn't deserve such luck." But it wasn't luck. It was sheer carelessness. He'll wear a prosthetic hand the rest of his life. ☆



Backbone of airborne assault in past operations and for the new First Allied Airborne Army is the C-47 shown here in invasion formation.

AIRBORNE ARMY

THE history of warfare is the chronicle of armies' efforts to turn the enemy's flanks and to protect their own. Defenders try to anchor their lines at both ends. Attackers keep maneuvering until they somehow envelop the enemy, getting to his side or rear.

In this war, air bombardment has been the great new means of getting behind the enemy. Industries, transport systems, and supply depots have been bombed to rubble. Communications lines have been slashed. Land forces have been harried and thrown disastrously off their stride.

Now comes a still newer development, a method by which the enemy's ground troops may be enveloped from a wholly unpredictable quarter—vertical envelopment from the air. It is the First Allied Airborne Army.

This tough, spectacular force, organized and commanded by Lt. Gen. Lewis H. Brereton, is not to be thought of in terms of past paratroop or airborne operations. It is more than a spearhead. It is an army in every sense—a strategic striking unit of enormous power, able to supply and maintain itself and to function independently against major objectives. Nothing like this army has ever been seen.

Allied airborne operations have previously been tactical in nature. Paratroopers and infantry, trained by the ground forces, have been flown in troop carrier planes and gliders to the scene of the battle for quick, specific jobs. To take airfields, perhaps, or knock out artillery positions. Their work, though critically important, has been incidental to larger operations. Once landed, they have fought under command of ground officers and, except for supply or evacuation, have had no further connection with the air forces.

This was Germany's technique, also. The Germans never organized air troops beyond divisional status and always relied upon the Luftwaffe for transport and supply. It is realized now that Germany's early airborne successes were largely due to a lack of preparedness on the part of her victims.

This has not been the case in Allied airborne assaults. Most of these have taken place against stubbornly defended enemy territory. Normandy provided perhaps the most brilliant success of such operations. On D-day three fully equipped divisions were landed behind German lines with the set task of seizing and holding the flanks of the Cherbourg Peninsula while behind them seaborne troops slogged up the beaches to overcome enemy resistance. General Eisenhower has said that without achievement of this mission the entire assault might have been impossible. Later, in the south of France, paratroops and airborne infantry were used to occupy the high ground overlooking the rocky coves and inlets toward which hundreds of Allied landing craft were steering.

These exploits, along with others in Sicily, Italy, Markham Valley of New Guinea, and elsewhere, surpassed in real effect any of the vaunted German assaults from the sky and demonstrated the value and unexplored possibilities of the airborne attack.

The First Allied Airborne Army is a logical outgrowth of all this experience. Conceived and planned by General Marshall and General Arnold, this army is a weapon of untold military and psychological power. The projected scope of its activities is enough to make every German start looking under his cot at night.

Composition of this army cannot be set forth exactly, but it contains elements of paratroops, airborne infantry, engineers, signals and communications men, and artillery. Supporting the combat force are streamlined supply, ordnance and medical units.

The air teams consist of troop carrier crews, radio operators, weather experts, maintenance crews, etc. Most of their planes, gliders, and equipment are precisely the same as have been used heretofore, with C-47s doing the bulk of the heavy duty.

From a personnel standpoint, this army is the interna-

Supplies and paratroops are being dropped in the photos below during intensive training maneuvers which preceded the big Normandy drive.

Airborne soldiers, shown here during invasion of southern France, can be used by FAAA to win and consolidate airheads behind enemy lines.

Here is a survey prepared just before General Brereton's tough, colorful organization invaded the Netherlands

By MAJ. CHARLES D. FRAZER

AIR FORCE Overseas Staff

tional set of the Allied armed forces. It is composed of both British and American airborne troops and airmen, plus men of French, Polish and other nationalities.

All such components are organized under a single command and will operate under that command at all times, subject only to the needs of Supreme Headquarters. Flexible, capable of striking anywhere with great energy, it will function on a basis of equality with all other field armies.

No longer an incidental force, but one having large strategic objectives of its own, the Airborne Army resembles the cavalry of other wars. It is designed for flash performance rather than a long, enduring period in the field. Equipped with motor transport, light guns, howitzers, and the usual infantry weapons, these troops are able to inflict severe damage on the enemy and to dislocate his operations in various ways.

Nevertheless, as the commanders point out, this army is a fragile and expensive tool of war. It should be used only when potential results make the risk worth while. Just as it is wasteful to utilize air bombardment against a target which could be leveled as well or better by field artillery, so is it unlikely that the airborne soldiers will ever be employed against a point which can be taken by regular infantry or armored forces.

This army might be used, on the other hand, to cut and capture a vital railway system well behind enemy lines. Or it could be dispatched to prevent the retreat of an opposing army, dropping troops to close a gap in a pocket which cannot be closed any other way, to seize bridges upon which the enemy is counting for reinforcements or supplies, to separate two armies which may be trying to consolidate, and for similar purposes.

Defensively, too, this army could be employed with telling effect, perhaps to plug a hole in Allied forward lines or to protect a major flank against sudden onslaught.

Whatever the purpose, however, the airborne army is essentially built for quick, unnerving, costly blows. When it goes into action, it should be and is prepared to hold an area until relief by regular troops can arrive. Its job is to win and consolidate an airhead, generally behind enemy lines (a nebulous figure of speech in the present war), supplying and maintaining itself the while, and then to be replaced by heavily armed ground troops.

Several months ago such an army could barely have been conceived, much less organized. Air supremacy means everything. Not only must the airborne army be sure of definite local air superiority while landing and assaulting initial objectives; it relies upon constant air support against heavy enemy armor. As a hardened infantryman once said, "You really need air power to hold a sector; you've got to have it to advance, and you certainly can't retreat without it. In other words, brother, it's important."

This is one of the reasons why probably half the commanding officers of the Airborne Army are airmen. These men know what is possible in the way of air support and supply. They know the problems to be solved in any type of operation.

Formation of the First Allied Airborne Army has vastly simplified assault technique. It has brought under one head all possible elements of airborne troops, merged them with the prime movers—that is, the troop-carrying units, completely standardized implements and techniques and training. Its headquarters staff, manned by American, British, and Allied ground and air officers, works as a unit and creates plans based on a thorough interchange of ideas and requirements. That staff is responsible for the success of the entire mission—for transport, landing, supply, and all subsequent field operations.

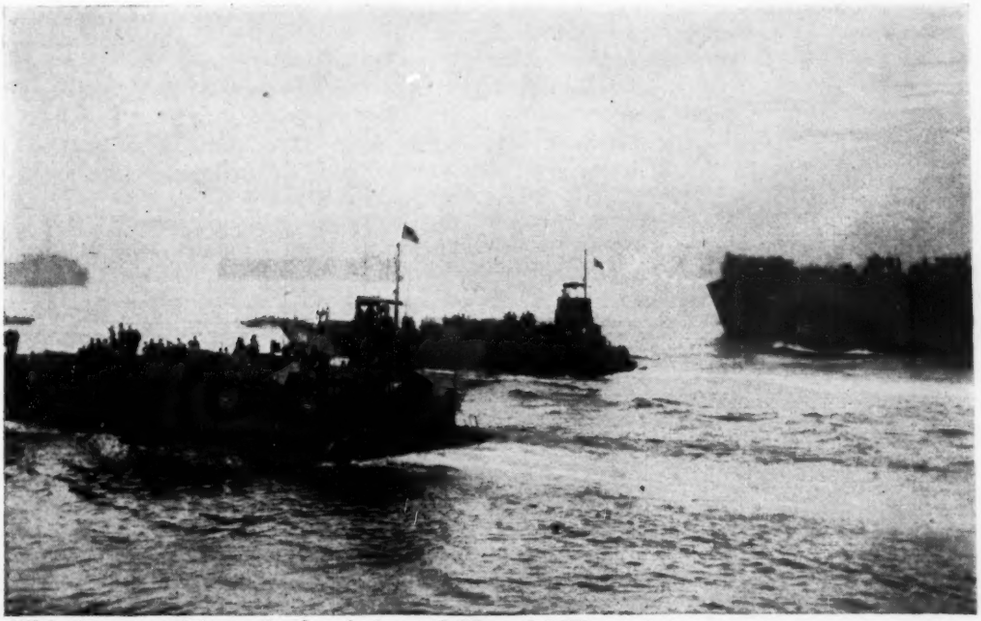
Many military leaders believe that the airborne army will change the entire pattern of warfare—and even of peace. Its potential employment as a peacetime police force is apparent. Whatever happens, it is a bold and daring idea. ☆

Countryside between Toulon and Cannes is speckled with parachutes that brought in men, supplies and equipment like field piece at right.

THE INVASION OF NOEMFOOR

IN an overwhelming sea and air assault, Noemfoor Island, located at the mouth of Geelvink Bay in Netherlands New Guinea, was wrested from the Japs in exactly seven days. Noemfoor is a strategically important stepping stone to Sansapor, springboard to Halmahera and the Philippines, 600 miles away. On July 2 infantry went ashore on the west side of the island near the key Kamiri airdrome which was being hit at the same time by paratroops dropped from C-47s of the 5th Air Force. Paratrooper in foreground is getting his chute under control while B-17 patrols the sky. The airdrome was captured in two hours.

Smoke in background is from Japanese shore guns which were silenced by cruisers, destroyers and bombers as the invasion fleet and C-47s moved in. Since Noemfoor Island has no seaworthy approaches, aerial reinforcement of troops and supplies was the most efficient method available.



With the coastal batteries knocked out, LCIs and LSTs headed for the beach at dawn, doors open and ramps down ready for the Ducks to hit the surf. Additional equipment and supplies were dropped to the men from transports as soon as the beachhead gains had been consolidated.

Humiliated paratrooper swings unhappily from a tree at the fringe of the airfield watching his buddies take the Kamiri strip.

Dead Japs in a trench at the edge of the airfield. Jap losses were 1,684 killed, 171 taken prisoner; our casualties were very light.

the B-29 and YOU

By MAJ. LUTHER DAVIS
AIR FORCE Staff

THE gunner had completed 85 missions in B-25s and he was being interviewed at an AAF redistribution center. "If you had your choice," said the interviewer, "what would you want to do next?"

Loud and clear came the sergeant's answer. "I want to be assigned to the B-29."

At this particular moment it can be said safely that casual aircrew members with combat experience in four-engined planes who get back to the States and request B-29 training have a good chance of getting it. Others with combat behind them may get into the Very Heavy program upon their own request if their particular experience isn't more urgently needed elsewhere. Newly graduated aircrew members take the same chances with probabilities, rosters, and just plain luck that they always have.

Let's assume that you have been tapped for the B-29. This means, first of all, that you go to the 2nd Air Force which is commanded by Major General Uzal G. Ent with headquarters in Colorado Springs, Colo. For transition training, individual combat crew member training, and replacement training, some may go to Brig. Gen. Newton D. Longfellow's 16th Wing. There many of you will see your first Superfortress.

Many novitiates to the Boeing Superfortress admit to being disappointed at finding that the thing is just an airplane, despite all the publicity, and not a magic carpet at all. It smells of gasoline and hot metal, requires constant attention and the same continual application of common sense as any other plane.

However, given the fact that it is an airplane, it's the most complete, the most advanced, and in many ways the most efficient in the world. On your first ride you'll notice that, for the crew members forward particularly, it is astonishingly quiet. The pilot, copilot, bombardier sit well ahead of the engines; the interior is sound-proofed so that those in command of the plane can talk to each other without benefit of intercom.

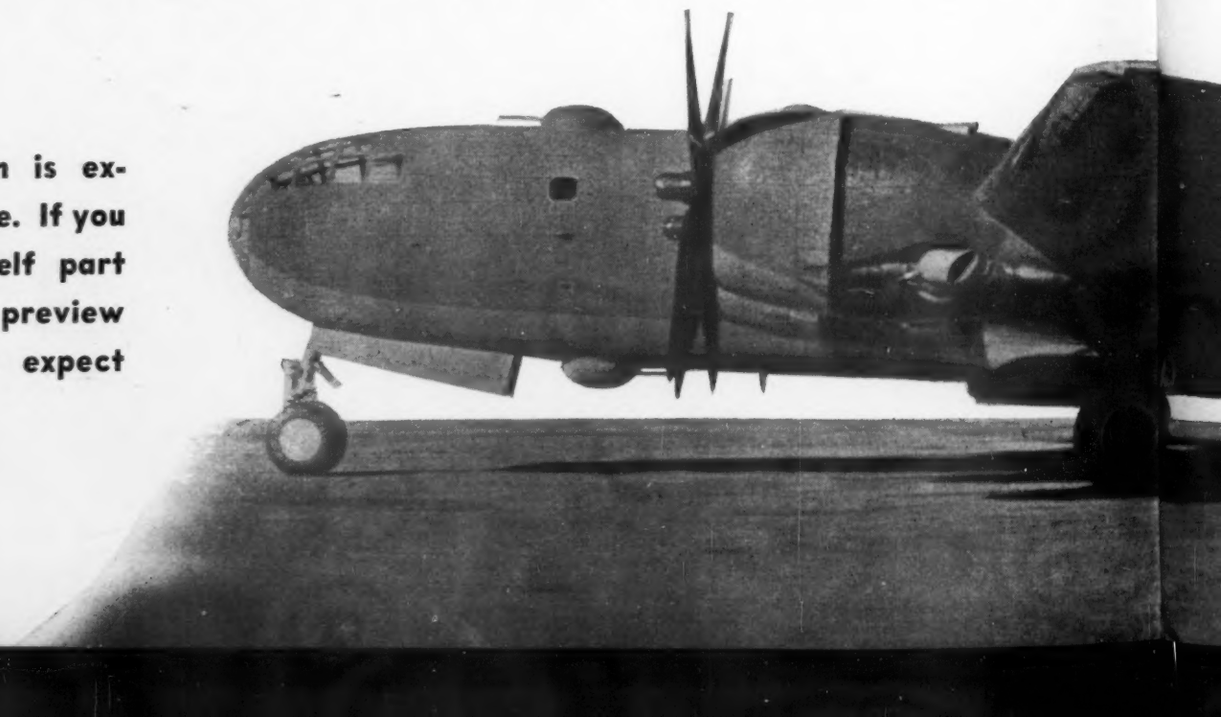
The pilot and copilot have fewer instruments than they have in any other four-engined plane—because most of the purely engineering instruments are given to the flight engineer, who has his place of business nearby. The navigator has a good place to work and a very complete set of self-computing, handy gadgets; an astrodome he can really get a sight from. The bombardier sits where he may signal or speak to the pilot and copilot without any time-lag. The radioman has lousy visibility but more equipment than KDKA, Pittsburgh. The gunners—they enter the emancipated life.

There's a system of remote fire control based on the fact that all B-29 gunners, except the tail gunner, are removed from any manual contact with their guns and fire them from remote stations. The tail gunner, unlike the others, is near his guns—he can at least see them—but he doesn't actually touch them.

Sighting is by automatic computers which correct for range, altitude, temperature, and airspeed. This means that gunners, removed from their guns, are spared the jar and vibration of recoil making it much easier to track and hold a target. The gunner's personal comfort is greatly increased as he doesn't have to crowd himself in behind his guns and ammunition. They have comfortable seats, room to stretch and move around, and more armor protection than in any other combat plane.

The B-29 handles more easily than any other four-engined airplane due to the perfectly balanced controls. It takes off easily with partial flaps at between 20 and 30 degrees but does not gain altitude or speed very quickly immediately after take-off. Because of the slim and aerodynamically perfect design of the engine nacelles, cowls must be handled carefully and cruising speed reached as quickly as possible.

The B-29 program is expanding all the time. If you should find yourself part of it, here is a preview of what you can expect



It has pronounced step characteristics in flight and is very definitely a position airplane. It flies easily and well on automatic pilot; has excellent stalling characteristics, giving plenty of warning. Once stalled it will oscillate itself out of a dive even if you don't touch the controls.

Landing is quite simple, although students have a little shock in the beginning because they sit so far to the side of the center line—it is nine feet from the pilot's left hand to the copilot's right. Eight to twelve hours is about usual for qualified multi-engined pilots to check out in the B-29—including night flying, instrument, and all the rest.

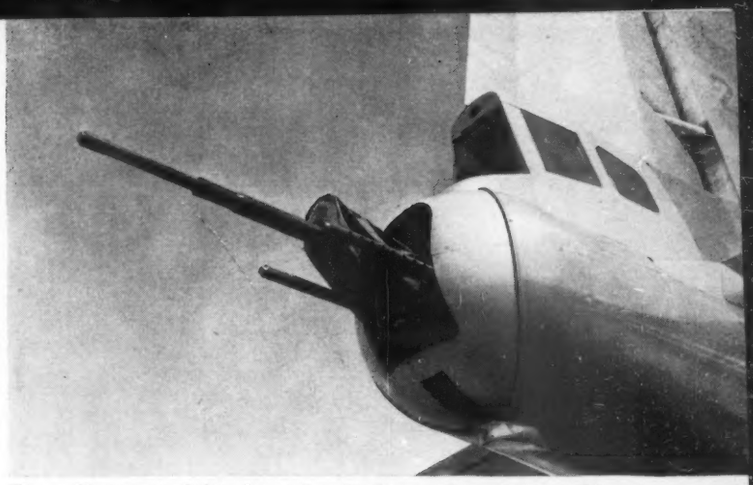
Operational training for the B-29 is the responsibility of the 17th Bombardment OTU Wing commanded by Brig. Gen. Frank A. Armstrong, Jr. General Armstrong will be remembered as the man who led our first six heavy missions over Europe; as the man who reorganized and headed the old 46th Wing which trained many B-17 crews.

In Nebraska and Kansas, the 2nd Air Force has evolved a system of training in which the permanent base staff works next to and with their Group opposite numbers so that each Group—B-29 Groups are on about the same T/O as any other heavy Group—gets the benefit of a well organized base with complete continuity throughout their training period.

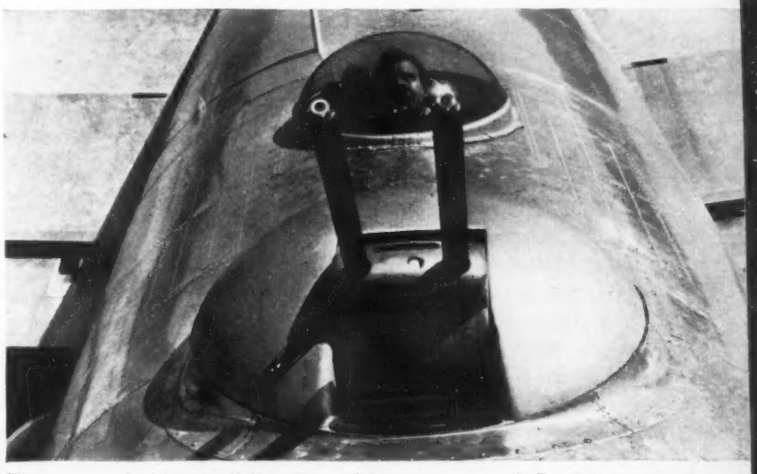
The 16th Wing's Combat Crew Training station and the 17th's Operational Training station work under the same directive from Headquarters 2nd Air Force. While some aircrew members go through both the CCTS and the OTU more get only the OTU training. Thus a man may expect not less than four months and not more than seven months to elapse from his entry into B-29s to his departure for combat.

The training directive provides that training be in the B-29 with the B-17 as a companion trainer —you can learn navigation in the Fortress just as well as in the Superfortress. The latest directive from 2nd Air Force calls for 126 B-29 hours and 44 B-17 hours at both the CCTS and the OTU.

All training in the B-29 has to take cognizance of the size of the plane and of the fact that, due to the plane's division into separate compartments, crew members



The tail gunner sights from the glasshouse above his two fifty calibers and one twenty millimeter cannon. He has his own pressurized compartment, and plenty of soft upholstery to lie on.



The gunner in the top blister runs his own guns and also is in a position to help coordinate and control the fire of the other gunners should there be any question of target priority.

must be very highly disciplined and the entire crew must cooperate and work as a team more than in the B-17 or B-24. While the pilot can talk to his crew forward he has to trust the flight engineer to handle the cowls, to make correct throttle adjustments for the cruising conditions the pilot calls for, to compute correctly the loading and consequent performance of the plane. He can't see his wheels or all his engines—has to trust the blister gunners to watch them for him.

Communication between the forward pressurized compartment and those aft is by means of a small, round, padded tunnel running above and the entire length of the bomb bays. It seems obvious that nobody's going to want to spend much time in this claustrophobiac's nightmare while a fight's going on.

In other words the pilot—who, in B-29 literature is always called the airplane commander—won't see his gunners when the plane is airborne; runs a good chance of failing in his own job if the gunners don't help him by reporting on the flaps, landing gear, engines. So that the airplane commander will have personal acquaintance with the rest of his crew it is standard B-29 procedure for all members to line up under the wing both before and after flight and stand inspection by the pilot.

There are eleven men in the B-29 crew; pilot, copilot, bombardier, navigator, flight engineer plus six enlisted men. The bombardier, navigator, radio operator find their job very similar to what it is in any other plane—just more of it—and the flight engineer is unique; was trained for the B-29 from the very beginning. Thus only pilots and gunners have any real transition problem.

Pilots entering the program have either, (1), a four-engined ticket to begin with, (2), a thousand or more hours in other types of aircraft, or, (3), are just out of flying school with a total of about 300 hours of which about 100 have been in four-engined aircraft. With such aerial backgrounds pilots have no trouble with the B-29. Truth is quite a few twin-engined pilots have checked out in B-29s with neatness and dispatch.

The gunners spend hours on mock-ups and ground-borne gadgets before they ever see their airplane, although computing sights are theoretically easier to operate than the conventional open sight. The great thing for them is to learn a system of fire control and fire priority that requires a high degree of cooperation and discipline—teamwork.

In fact that's the story on every job in the B-29—more than ever you'll be a member of the aircrew; more than ever dependent on what the others do and don't do. ☆

What's your air force I.Q.?

This month's AIR FORCE QUIZ is a little rough. Credit the usual five points for each correct answer. A score of 85 or above this time is excellent; 70 to 80, not bad; 60, fair; below 60 and—well, it could happen to anybody.

Answers on Page 59

1. Maj. Gen. George Stratemeyer is commanding general of the
A. *Far Eastern Air Command* B. *10th Air Force*
C. *Eastern Air Command* D. *13th Air Force*

2. The wingspan of the B-29 is
A. *174.6 feet* B. *192.7 feet* C. *119.3 feet* D. *141.7 feet*

3. When a man is returned from an overseas tour of duty, he normally goes to a Redistribution Station nearest
A. *The port of debarkation* B. *His last station in the United States*
C. *His home* D. *The station to which he most likely will be assigned*

4. An officer's leave may accrue for a period of four years.
A. *True* B. *False*

5. The first shuttle bombing flight from Italy to Russia took place on
A. *June 2* B. *May 17* C. *July 10* D. *June 29*

6. The Commanding General of the 20th Air Force is
A. *Brig. Gen. Haywood Hansell* B. *General Henry H. Arnold*
C. *Maj. Gen. Hoyt Vandenberg* D. *Maj. Gen. Davenport Johnson*

7. Troop carrier Pathfinder crews in the Normandy invasion flew in
A. *C-47s* B. *B-17s* C. *C-46s* D. *C-87s*

8. The horsepower of the P-63 engine is
A. *1,000* B. *1,700* C. *1,200* D. *1,500*

9. Engine temperature is controlled on a liquid-cooled engine by
A. *Pressure baffles* B. *An oil temperature regulator*
C. *Radiator shutters* D. *A thermocouple on the cylinder*

10. The Flying Dutchman is
A. *A native of Holland trained by the AAF* B. *The name given to the P-61*
C. *A life boat dropped for rescue purposes* D. *Part of the engine of the B-29*

11. Normally, an American rocket firing plane carries how many rockets?
A. *Four* B. *One* C. *Three* D. *Six*

12. Carney Field is located on
A. *Bougainville* B. *Guam* C. *Guadalcanal* D. *Tinian*

13. The Jap aircraft referred to as a "Betty" most closely resembles our
A. *B-26* B. *P-40* C. *B-17* D. *P-39*

14. The yearly base pay of a colonel in the AAF is
A. *$8,000* B. *$2,500* C. *$4,000* D. *$6,000*

15. The approximate speed of the R-4 helicopter is between
A. *120-130 mph* B. *90-100 mph* C. *60-70 mph* D. *150-160 mph*

16. One silver oak leaf cluster is authorized for wear in place of how many bronze oak leaf clusters?
A. *Five* B. *Three* C. *Ten* D. *Eight*

17. The Bonin Islands are located between
A. *The Marshalls and the Marianas* B. *Japan and China*
C. *The Marianas and Japan* D. *The Carolines and the Marshalls*

18. The letter designation "L" stands for what type of aircraft?

19. The westernmost island in the Aleutian chain is
A. *Umnak* B. *Kiska* C. *Adak* D. *Amchitka*

20. Identify this airplane. ▼

The hard facts about INCOME TAX

By Brig. Gen. L. H. Hedrick

The Air Judge Advocate

The following article is the third of a series written for AIR FORCE *by General Hedrick.*

As a soldier you have certain privileges, but that doesn't necessarily mean you're exempt

MANY servicemen returning from overseas have been astonished to find themselves in debt to the government for income taxes. Somebody has told them, most of them can't remember just who it was, that as long as a man is on duty outside the United States he is exempt from taxation.

This is typical of the misinformation that is going around concerning the application of the tax laws to military personnel. There is more confusion about taxation than about any other phase of the civil affairs of service men and women.

One rumor has it that every soldier below the rank of lieutenant colonel is excused from income taxes. Another is that when a man enters the service, any taxes he owes on previous income are wiped out. And so on and on.

It is time to do some debunking. This article will undertake to explain, briefly and simply, how the tax laws affect you as a serviceman. It won't make you an expert, but it will offer some guidance, and it might serve to keep you out of trouble with your Collector of Internal Revenue.

It is quite true that you, as a soldier, are entitled to special consideration as far as your income tax is concerned. To begin with, consider the special provisions for service personnel which are currently applicable. It will be desirable later on in this article to point out the respects in which current provisions differ from those of previous years, since some men and women now overseas may have to file two or three years' tax returns at once when they return.

Perhaps the most important current provision is the one which exempts the first $1,500 of Army pay from income taxation. What that means is that a major, for example, with a base pay of $3,000 and no other income, reports only $1,500 of gross income on his tax return.

The $1,500 exemption is good only for Army income. A private, for example, who has only $600 of Army pay gets an exemption of $600. If, from outside sources, he has other income, he gets no deduction from that merely because he is in the service.

Any serviceman who, having applied his military exemption, finds that his remaining gross income, Army pay or otherwise, amounts to $500 or more must file a return, even though on the basis of that return he owes no tax. This rule applies regardless of the taxpayer's marital status or the number of his dependents.

It should be emphasized here that taxable Army income includes more than base pay. It also includes flying pay, longevity pay, overseas pay, parachute pay and any profit one might have made from travel allowances, either mileage pay or per diem. Only rental and subsistence allowances are not income for federal tax purposes.

A complete vacation from tax obligations, both returns and payments, is permitted only for service men and women serving overseas. For them, the due dates are simply postponed until the 15th of the fourth month following their return to the United States, when they must file all back returns and pay all back taxes, unless they are granted a deferment.

For this postponement based on overseas service, such service need not be continuous. A soldier who has been overseas for as long as 90 days may return to the United States on temporary duty for a period up to 90 days without losing his postponement privilege.

Congress has made provisions for persons who took substantial cuts in income when they entered military service. A soldier who can show that his ability to pay his taxes has been materially affected by reason of his entering the armed forces may postpone actual payment until six months after his discharge. An application form for this deferment may be obtained from a Collector of Internal Revenue. Your legal assistance officer will help you prepare this application.

Contrary to a widespread impression, soldiers, like other taxpayers, have been placed on a pay-as-you-go basis. Employers make deductions from civilian salaries for income taxes. Soldiers, on the other hand, pay by March 15 or quarterly on the basis of declarations of estimated income. By March 15, a soldier files with the Collector of Internal Revenue for his home collection district a declaration form showing his estimated income and tax for that year. He either pays the full amount of the estimated tax at that time, or divides it into four instalments—paying one-fourth with his declaration and the remaining quarterly instalments on June 15, September 15 and December 15.

By March 15 of the following year, the taxpayer files a final return on the basis of the actual income he has received during the previous year. If the corrected tax is more than he estimated a year earlier, he pays the difference. If it is less, he gets a refund from the government or applies the excess on the succeeding year's taxes.

If a man dies in military service, all income taxes which he owes to the government at the time of his death are forgiven. This applies not only to taxes on Army pay, but to all income taxes. If a serviceman's wife, not yet notified that he has been killed, makes a payment on his income tax after his death, she is entitled to a refund.

Except for these special provisions, the income tax returns for soldiers are figured exactly like those of civilians. As always, the taxpayer takes his deductions for such items as contributions, taxes and interest, thus arriving at his net income. From this, he subtracts $500 for his own personal exemption. To determine the normal tax he subtracts the personal exemption from the net income and takes three percent of what is left. If it is a joint return, a personal exemption of $1,000 may be taken, provided the gross income of each spouse is $500 or more. If one of the parties to the joint return has a gross income of less than $500, this amount plus $500 is the amount of personal exemption.

In addition to the normal tax, there is a graduated levy known as the surtax. To compute this tax, begin with the net income and subtract $500 for the taxpayer's personal exemption, $500 for a spouse and $500 for each dependent. The remainder is known as the surtax net income. The surtax starts at 20 percent for a surtax net income of $2,000 or less. It is 22 percent on the amount of surtax net income between $2,000 and $4,000, 26 percent on the amount between $4,000 and $6,000, 30 percent on the amount between $6,000 and $8,000, and so on up.

There is an easier way than going through all the computations explained above. If his gross income is $5,000 or less, the taxpayer may merely consult a table which shows taxes for various levels of income and pay accordingly. This table automatically allows the taxpayer an arbitrary deduction of approximately 10 percent, which is in lieu of the actual deductions he would be permitted to take if he figured his tax step by step. If his gross income is over $5,000, the taxpayer may elect to take a standard $500 credit in lieu of the various specific deductions.

However, the taxpayer, if he prefers, may make his return the hard way, figuring out his deductions, net income, surtax net income, and the normal and surtax levies.

Persons who filed declarations of estimated tax for 1944 will recall that in making their computations they included a victory tax. Subsequently, that tax was abolished, but in effect it has been replaced by revised normal tax and surtax rates. The final return on 1944 income, which will be filed by March 15, 1945, will be computed on the new rates, and the taxpayer will be credited with any payments he has made on the basis of his 1944 declaration, which included the victory tax. This change will not make any substantial difference in the amount of tax involved.

Now have a look at some of the principal differences between the current tax provisions and those which were applicable in previous years.

The most complicated changes were those which affected the transition from the former tax payment system to the pay-as-you-go plan. Until 1943, all income taxes were paid during the year following the taxable year. Taxes on 1940 income were paid in 1941, taxes on 1941 income in 1942.

The formula for effecting the change-over was complicated, since it was necessary for most taxpayers to start paying their 1943 taxes before their 1942 tax obligations had been discharged fully. The civilian taxpayer became current by paying the larger of the two years' taxes plus one-fourth of the smaller tax. Thus, if a civilian's 1942 tax was $100 and his 1943 tax was $150, he paid for the two years $150 plus $25, or $175.

The change-over plan was more generous for soldiers. The system established for civilians applied to a soldier only in the event his 1943 tax was larger than his 1942 tax. If the 1942 tax was the larger—and this was the case with the great majority of military men—he was permitted to recompute his 1942 tax, disregarding his earned income for that year and, in effect, pay only the 1943 tax plus one-fourth. In other words, assume a soldier's 1942 tax, all of it on earned income, was $500, and his 1943 tax was $200. For the two years, then, he paid $200 plus one-fourth or $250. Earned income is salary, commission or bonus. However, the first $3,000 from any source is deemed earned income for income tax purposes.

This meant that if a soldier's 1943 tax turned out to be zero, he was entitled to a refund of all he had paid on his 1942 tax, provided all of this tax had been on earned income. This was a windfall to a man who earned a large civilian salary in 1942 and subsequently entered the service at a reduced income.

The victory tax was effective only for the taxable year 1943. For most military men with no outside income, it usually amounted to only a few dollars. It was computed on the taxpayer's so-called "victory tax net income," which would normally be a serviceman's Army pay less his $1,500 exclusion. The tax, then, would be five percent of the victory tax net income after a personal exemption of $624, minus 25 percent of the tax if the taxpayer was single, 40 percent if he was married. An additional two percent of the tax was deductible for each dependent.

In 1943, the exemption for each dependent was $350, and a dependent was defined as a child under 18 or a person physically or mentally incapable. Now a dependent is a close relative who receives from the taxpayer 50 percent or more of his monetary support from the taxpayer and whose gross income from other sources is less than $500 a year. A married man's personal exemption was $1,200 in 1943, and a single person's $500.

The earned income credit was deductible in 1943 for the last time in computation of the normal tax. That credit was 10 percent of the net income or the earned income, whichever was the smaller figure.

The first special provision for servicemen was made for the 1942 taxable year. In computing their gross incomes that year, enlisted personnel were permitted to deduct from their Army pay $250 if single and $300 if married. The $1,500 military service exemption was first effective in 1943.

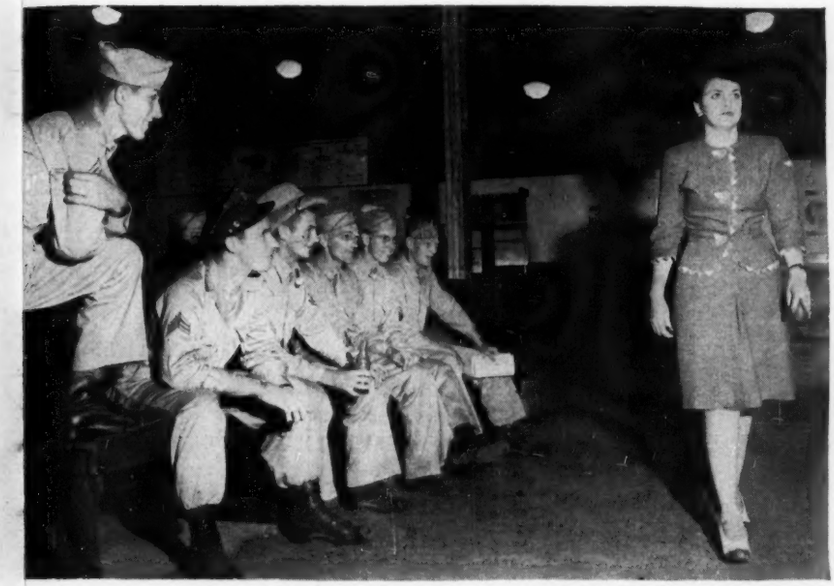
Many state income tax laws have been modified in favor of men and women in military service. Montana and Kentucky exempt them completely. In Virginia the first $500 of military pay and allowances is not considered income for state tax purposes. Oregon exempts the first $3,000 and Minnesota the first $2,000. Most state income tax laws provide substantial personal exemptions in any case, so that relatively few military men are affected by these laws. However, for purposes of state income taxes, a soldier's rental and subsistence allowances are generally considered income.

Obviously, it has been impossible to answer detailed questions about the tax laws in the space of this article. The best this explanation could attempt has been to cover the important provisions affecting servicemen. If you are overseas, perhaps what you have read here will help you plan your personal affairs when you return to the United States.

Tax law is now extremely complex. Most persons require guidance to compute properly their tax obligations to the government. You are entitled to qualified assistance, and such assistance is available. If you have any questions, either now or when the time comes for new tax returns, declarations or payments, the legal assistance officer at your station will be glad to help you. If there is no legal assistance officer at your station, you may write direct to The Air Judge Advocate, Legal Assistance Division, Washington 25, D. C. ☆

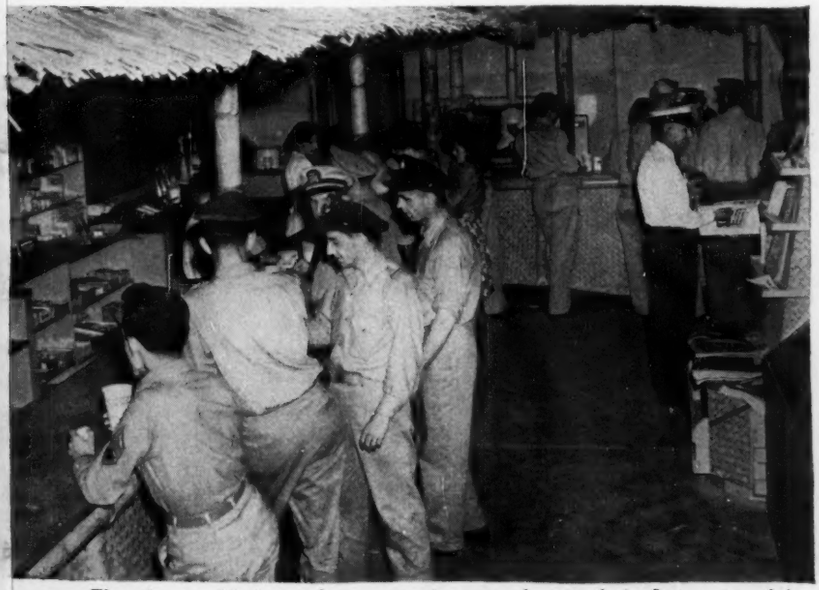
the PEARLY GATES

The first thing the average GI wants to do when he gets back from overseas is to phone somebody—usually his girl. The next is to drink three chocolate malts. The next —well, that's *his* business. Casual personnel being returned from Africa, the Middle and Far East by air usually come through ATC's big base at 36th Street in Miami. If you're assigned home from one of those theaters and are lucky enough to fly, chances are you'll come through 36th Street. And if you're from some other theater and land in New York or San Francisco, you'll find conditions very similar to those shown here.



First sight of an attractive American girl. Lots of returnees look the way the wolf in the sun helmet looks. Some look even wolfier.

"Yeah, Mabel, it's Joe. J-O-E. I know he's in China. I'm just back. I mean, I'm not in China anymore. I'm HOME!"



There's a milk bar where returning casuals get their first taste of ice cream—and the men leaving prepare for the long drought ahead.

"I swear these items are for personal use only: one Churka Kukrie, one Samurai sword, one scarab from Cairo."

Jap Air-to-Air Bombing. It has become apparent that Jap strategists are counting heavily on air-to-air bombing to combat our bomber formations. Reports from all areas of the Pacific indicate increasing use of this type of attack, which is less hazardous to the attacking airplane than conventional fighter interception.

Many Jap airplanes are being equipped primarily for use in air-to-air bombing. This 7th Air Force report is typical:

"On one Truk mission, a heavy bombardment group was intercepted by single-engine fighters at about 19,500 feet shortly after the bomb run. The enemy fighters did not make any firing passes but did maneuver into range several times only to pull out after our gunners opened up. About eight air-to-air bombing passes were made from one o'clock and three o'clock high, the attacker taking care to remain well away from the AAF planes. About four bombs were dropped, two of which were close to altitude and on the course of the bombers. Had it not been for evasive action, several AAF planes would have sustained hits. As it was, three planes flew through the streamers without damage."

The Japs have undertaken to standardize an air-to-air bomb attack plan for the Zeke fighter. It's like this:

The attacker comes in high from head-on, levels off for the bombing run at an altitude of about 300 feet higher than our bomber. At a range of 3,300 feet from the bomber, the fighter pilot finds that the bomber's wing span completely fills his bombsight ring. At that point, he releases one or more of the ten 66-pound bombs he carries under his wing. The bomb has a three-second time delay. The rate of closure between the released bomb and the target plane is 800 feet per second. Thus, the bomb will detonate when it is one second or about 800 feet ahead and 200 feet above the bomber—that is, if the Jap's aim is on the mark.

Current fond hope of the Jap air-to-air strategists is a new 132-pound bomb. Also getting attention just now is a rocket-type air-to-air bomb, from which the Japs have officially promised "violent results."

It was the air-to-air bomb that a Jap airbase commander had in mind when he recently reported:

"Considering the violent aerial warfare in the southeast area at the present time, the enemy is making quantity and large model planes speak for themselves and is adopting a strategy of overwhelming force. On our side, no matter how good a fight we put up against this enemy which exerts such force there is naturally a limit to what we can do, and there will be no avoiding a desperate fight. Nevertheless, if we adopt a strategy which will prevent the presence in the sky of these massive quantities and large model planes, then this phase of the decisive battle in the sky must in the end inevitably change."

Clever. For good or ill, the Jap is an ingenious soldier. Take the fellow who gets fed up beyond endurance with life in

an outpost. Figuring that illness would be a good way to bring about his evacuation to Japan, he contrives to get sick. His favorite stunt is to pour water into his ears and keep it there until infection sets in.

Nazi Squirt. The ME-163, German jet-propelled single-engine fighter, was encountered for the first time by our fighters late in July.

A pair of them, apparently attempting to attack our bombers, separated when they observed P-51s approaching. One went into a 45-degree dive; the other climed into the sun at 50 or 60 degrees. The latter appeared to be climbing at a speed of about 500 miles per hour.

Although the airplane is capable of great speed in climbing, diving and maintaining level flight, it seems to lack maneuverability.

The German Air Force has a few 163s in operation and also a small number of ME-262s, its twin-engine jet-propelled planes.

Dual Purpose. Recent capture on Saipan of fifty-five 120 mm dual purpose guns and the capture at Biak of guns of the same caliber and model indicate that 120 mm guns may be used more and more frequently in Jap antiaircraft defenses.

A mechanical director computes firing data. Gun elevation is zero to 85 degrees; rate of fire, 10 to 12 rounds a minute; horizontal range, 21,000 yards, and maximum vertical range, 35,000 feet.

AWOL. Briefly, here's what happened to Jerry, a German sailor. With a 21-day leave pass in his pocket, he boarded an electric train in France for the four-day trip home. The train stalled when the Allies bombed out the power station that supplied it. He waited three days for a steam locomotive, which finally arrived, but it hooked on to the rear and pulled the train back because by then the line ahead had been bombed out. At a junction, it switched to another route, but had to back up again because that line also had been blasted. Jerry went back to the station he had left four days earlier, boarded an ancient narrow-gauge train that, after a circuitous trip beset by interference from the Allies, got him home on the 10th day of his leave.

Six days later, he grudgingly started back to duty. Again he had delays. Supply trains had priority over the tracks that remained, so he finally boarded a bus, got back to his station worn out and with a deal of explaining to do. He had overstayed his leave and his ship had sailed without him.

Phony Messages. As we have emphasized before in these pages, one cannot believe all one hears by radio in a combat zone. Our enemies frequently transmit deceptive messages in the hope of disrupting our operations, and sometimes they succeed. Authentication of messages is essential.

Here are some recent phonies:

YOUR ENEMY

An aircraft flying one of the overseas ferry routes was instructed to return to its base. The radio operator did not challenge the message, and the pilot headed back. When the aircraft landed, it was discovered that the message had not been transmitted by the base station or any other station in the net. It obviously came from an enemy submarine.

At another overseas point, a ground station received a distress call purporting to come from an aircraft. For several minutes, the net was tied up with emergency procedure. In the midst of these efforts, the aircraft involved landed at one of the stations participating in the rescue procedure. The message had not come from this aircraft. Again, presumably, an enemy submarine turned the trick.

During the Tarawa operation, a Japanese operator took over the call of the commander of one of the transport divisions and gave orders to land troops and supplies west of a certain pier, where Japs armed with automatic weapons were lying in ambush. The radio operator, alert and suspicious, demanded authentication. There was no reply, and orders were given to disregard the phony message. This Jap attempt at deception failed.

AA in a Hut. A current Jap trick is to camouflage heavy antiaircraft installations as native huts. A structure of this kind, made of palm fronds and camouflage nets, rests on a runway of planks so that it can be moved quickly to clear the gun for action. The device is in line with the Jap system of relocating antiaircraft installations at frequent intervals.

Emplaced Flame-Thrower. In both France and Italy, the Germans have used emplaced flame-throwers which, while effective as a psychological measure against advancing troops, are not of great tactical value.

The flame-thrower consists of a heavy cast iron cylindrical tank with an eight-gallon capacity, a small cylindrical propellant container screwed into the tank, and a flame tube two inches in diameter which rises from the top of the device and bends forward about 20 inches. A container just below the muzzle holds the ignition squib which ignites the liquid as it is emitted from the tube. It is fired by electrical impulse.

The burst is 1 to 1½ seconds, and the heat is intense at a distance of 10 yards from the flame. Weapons of this kind have been found emplaced directly behind minefields and barbed wire entanglements. Usually they are concealed in piles of rocks so that only the muzzles are exposed.

Little Gentlemen. A recent Jap order to troops in Burma pointed to the importance of understanding the psychology of the natives. Soldiers were urged to "display the spirit of the Imperial Army."

Because they were regarded as "distasteful to the natives," the following practices were frowned upon:

Disfigurement of the pagodas.

Striking natives.

Insulting priests or coercion of natives.

Molesting women.

Exposing the naked body.

Jap Firepower. More reports of increased Jap armament: It is now known that the Emily, Jap four-engine patrol bomber, carries five 20 mm cannon, one in a top turret, one in a tail turret, one in the nose and two in the waist. The top and tail turrets are hydraulically powered for elevation and traverse, and the nose gun is hydraulically powered for elevation. The top gun has a 360-degree traverse and 85-degree elevation. The tail turret has 40-degree traverse to either side. Waist cannon cover a cone of approximately 120 degrees traverse and 85 degrees elevation. Armor plating on this bomber also has been increased.

Shympathy and Shtuff. Ready to face the facts ugly though they be, a German division commander issued the following order:

"Real comradeship can prevent much trouble. A soldier should help drunken comrades to keep out of trouble. If a soldier is ordered to get a drunken comrade home, he is obliged to obey. Men who report late because they help a drunken comrade will not be punished."

Just Like That. The way to destroy Allied air power, says a recent official Jap document on the subject, is to "deal the enemy air force its death blow at the outset of the battle by seizing the initiative with a surprise raid which employs an overwhelmingly superior air force.

It adds: "Then the enemy will be destroyed by a succession of relentless attacks which allow him no chance for recovery. The principal aim will be to achieve psychological and material success by using a concentration of power and by selecting the time and measures demanded by the situation."

And as a final thought: "We will plan to achieve complete success in battle by making repeated attacks in succession regardless of loss."

China Combat

By Capt. Robert B. Hotz

14th Air Force

THREE wings of Maj. Gen. C. L. Chennault's 14th Air Force during the spring and summer have fought the Japanese land forces under the widest variety of conditions ever met by air power. From week to week General Chennault and Brig. Gen. Edgar E. Glenn, his chief of staff, were faced with new and difficult problems of strategy and logistics. How well they solved them can now be judged from the record of air action in three widely separated campaigns.

In each campaign the air units faced an individual problem. In the north, in the Yellow River valley and on the plains of Honan province, the Chinese-American Wing commanded by Col. Winslow Morse fought a mechanized Japanese army which used spearheads of tanks and armored cars, supplemented by motorized infantry and supply.

In the hills and river network of Hunan province, to the south, Brig. Gen. Clinton D. Vincent's wing opposed an offensive led by cavalry and water-borne troops and supplies.

Among the peaks and gorges of southern Yunnan, in extreme southwestern China, Col. John C. Kennedy's wing had to supply an army of mountain and jungle fighters, while cutting off the enemy from supplies and, at the same time, furnishing heavy, mobile artillery to bolster the Chinese attack.

The biggest and most critical of these campaigns involved the Japanese offensive in eastern China, designed to take the Hankow-Canton railroad bed and drive the 14th Air Force out of eastern bases.

Limited by the trickle of airborne supplies across the Hump, facing a numerically superior enemy force and confronted with the necessity of providing air support to Chinese armies on three widely separated fronts, General Chennault and his staff met a constantly changing series of problems as they struck back at the advancing Japanese.

An estimated 80,000 well equipped Japanese veterans poured down into Hunan from the Hankow bulge late in May for a seven-pronged attack to the south. As the campaign progressed, reserves totaling 120,000 were added, making it the largest Japanese offensive since the Sino-Japanese war began. The Chinese armies opposing them were battle-wise veterans of the Rice Bowl campaign, but they were equipped with rifles, grenades, machine guns and small mortars, as against Japanese artillery, heavy mortars and well equipped cavalry.

In the early stages of the advance, the enemy attack moved down the network of waterways south of Tungting

Liberators (below) struck Youchow in August. Crews reported that all bombs landed inside the target area and damaged enemy railroad yards.

Bombs often travel in Chinese riverboats to reach a B-24 bomb bay.

"Liberators of China," fighter escorted, enroute to strike Sinshih.

Airmen of the 14th Air Force and their Chinese allies fight against the advancing Japanese

Lake in powered landing barges, sampans, double and triple decked river steamers supported by gunboats and light destroyers. On land, along the eastern flank of the drive cavalry spearheads led the attack, supplied by motor convoys and pack horse trains. The Japs avoided the good roads which Chinese had blocked and were prepared to defend. Instead, they streamed down neglected secondary roads and over winding paths through hills and between rice paddies.

During the first month the weather was so bad that Japs relied upon it for protection against air attack and moved freely and openly during daylight. Except for the opening days of the attack, weather grounded the Japanese air force, and the enemy commanders expected the American air force to suffer a similar fate. In that error they reckoned without the fighter-bombers of Col. David (Tex) Hill's famous fighter group. For weeks on end these men flew through non-operational weather, took off in rainstorms that screened the end of the runways, battled fog and fronts and 100-foot ceilings, and twisted their way up rivers and valleys to find and slaughter enemy columns. The P-40s and Mustangs of this group flew eight to ten missions a day from rain-soaked fields, with many pilots averaging three and four missions a day for a week at a stretch. One squadron leader flew 47 missions in less than three weeks, was shot down twice, ran back to safety across the battlefield with Jap patrols on his heels, then shot down three Jap planes in a single fight over Hengyang. All of these missions were flown on the deck and in the teeth of heavy ground fire. On many river sweeps, ceiling and visibility were so bad that pilots could see neither bank of the stream and their props kicked spray off the water.

The slaughter during this phase of the campaign was terrific. Time after time the Americans caught cavalry columns of 500 to 2,000 men and horses strung out along roads in narrow valleys. Parafrags and rockets tore great gaps in the columns in the first surprise attack, then the fighters returned in pass after pass to strafe the survivors. The main truck road running southwest from the Yangtze River bases was combed repeatedly and it soon was dotted with burned and wrecked trucks. Heavy attacks were made on the huge flotillas and heavily laden transport fleets moving down Tungting Lake and the rivers south of the lake. Rockets gutted the big transports, dive-bombing knocked out gunboats while parafrags and strafing made a bloody shambles of troop-loaded barges and gas-carrying sampans. Pilots dumped their belly tanks into the mass of wrecked boats, troops and horses, and the next pilots set the gas ablaze with tracers. Close liaison between Chinese ground forces, American field radio teams and air force units resulted in many devastating strikes during the early phases of the campaign. In one series of five missions against Japanese landings on the south shore of Tungting Lake, the American fighter-bombers killed 1,500 troops, 300 horses and sank nearly 200 boats.

By July 10, American planes had sunk 3,980 boats, including 30 large steamers and five gunboats; killed 8,000 troops and nearly 3,000 horses and had wrecked or burned 800 trucks. Marshal Hseuh Yo, commander of the Chinese field armies, credited the American planes with killing and wounding 14,000 Jap troops and destroying 26 field supply depots.

By the time Japanese forces had reached Hengyang and the Chinese 10th Army had made a determined stand, the enemy was temporarily depleted by the American air assault, and it took more than a month to move enough fresh troops and supplies through the gauntlet of the 14th's air attack to wipe out the Chinese defenders and take the town. While General Fong's 10th Army was sacrificing itself in the ruins of Hengyang, fresh Chinese armies were able to reach the front and establish a defense line south of Hengyang.

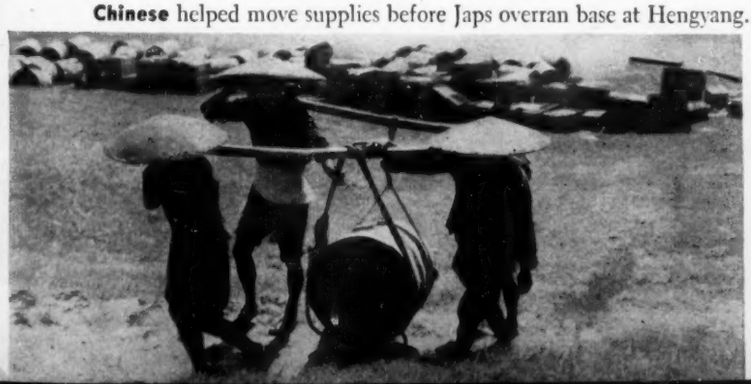
During the 49-day battle for Hengyang, bombers and transports dropped tons of rice, ammunition and medical supplies to the besieged garrison. The Americans dive-bombed Jap artillery positions and pill-boxes around the town, strafed trenches and destroyed hillside temples which the Japs had converted into strong points and command posts.

Jap prisoners captured around Hengyang gave eloquent testimony to the effectiveness of the American air attack. Most of them were captured on food foraging expeditions, made necessary by the failure of rice supplies to reach the front. Many prisoners reported that they received no rations for a week at a time and were forced to live off the land. They were captured while digging potatoes, stealing peaches and chasing chickens, and many had only the ammunition which was left from the 150 rounds issued them at the start of the campaign. All were bitter about the lack of air support from their own planes and many said the only tactical planes they had seen were American. Casualties among some units were so heavy in air attacks that they were withdrawn from the front.

When the weather cleared in early July, Mitchell bombers joined the battle. Cannon-carrying B-25s swept the broad Siang River and Tungting Lake as well as the Yangtze where fresh troops and supplies were still moving west to Hangkow. Gunboats, transports and freighters were sunk by long range shelling from the airborne 75s. Supply depots became a special objective of the Mitchells, and with Mustangs leading the way and marking the targets by dive-bombing, the medium bombers followed and delivered the heavy punch. Every main Japanese field supply depot between Yochow and Sinshih was repeatedly hit, and the main transshipment point at Sinshih was virtually wiped out in a 72-hour sustained attack. P-40s and Mustangs dive-bombed by day while Mitchells and Liberators from rear bases saturated the target by night. Truck parks, fuel and ammunition dumps and rice stores all went up in great fires and explosions that rocked the town for a full day after the bombing. The major

(Continued on Page 60)

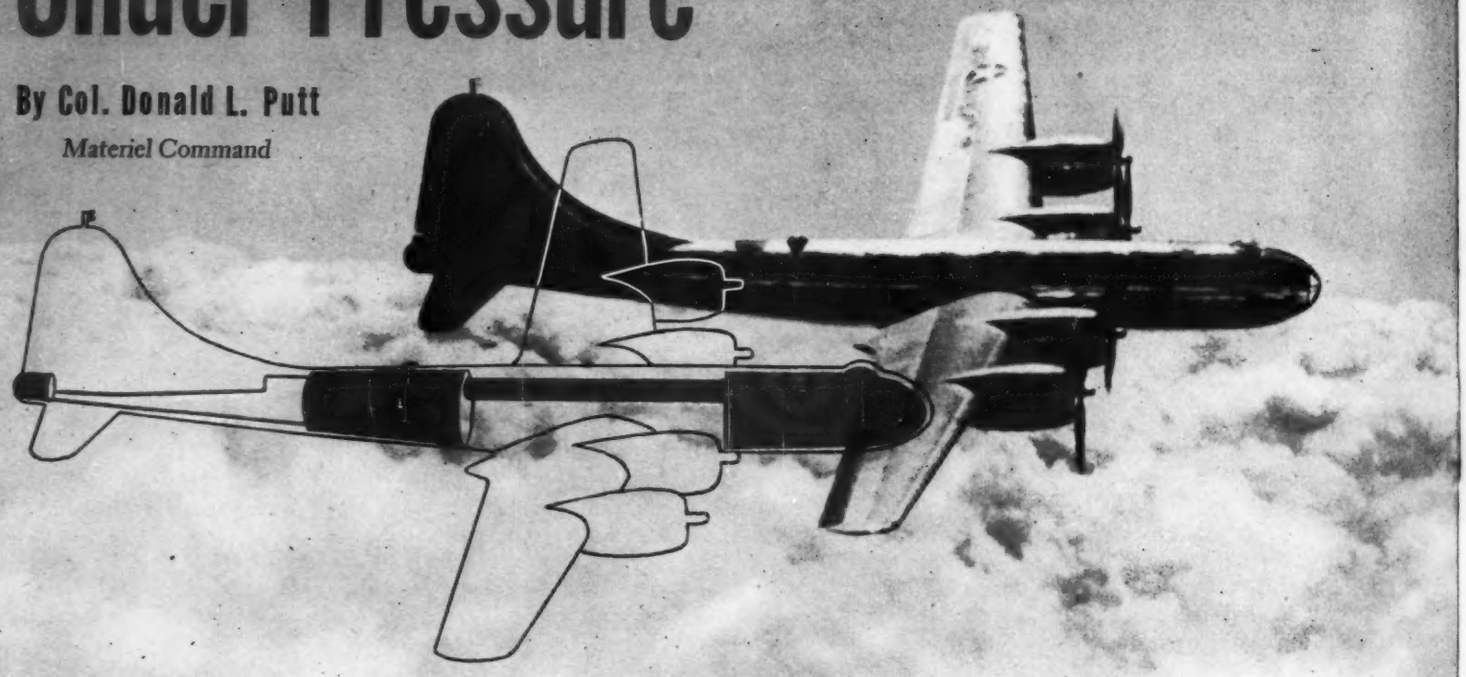
Chinese helped move supplies before Japs overran base at Hengyang.



The AAF left scorched earth for Japs who took Hengyang airfield.

Under Pressure

By Col. Donald L. Putt
Materiel Command



The pressurized interior of the B-29 is the result of research and experimentation which began in 1919.

For more than 25 years, aeronautical engineers have experimented with pressurized cabins as the solution to problems of anoxia and bends encountered at high altitudes.

The mechanical problem has been to build an airtight plane that can fly in the substratosphere where the air is thin and the pressure is low—an aircraft with a leak-proof cabin that would maintain low-altitude atmospheric pressure during high-altitude operations.

Although the first tactical aircraft incorporating pressurization was the B-29, the AAF had launched its research program on pressurizing airplanes in 1919.

There were two possible solutions to the problem. One was to force oxygen into the lungs through pressure masks worn at high altitudes; the other, to pressurize the cabin air.

In 1919, Lt. Harold R. Harris, a test pilot, took off in an airplane with a sealed tank-like chamber covering the cockpit—the first test flight of a pressure cabin. Air from a wind-driven blower mounted on the plane's wing was compressed in the cockpit. The test failed when the pressure control mechanism went haywire. Instruments recorded a cabin temperature of 150 degrees and an altitude of 9,000 feet below sea level!

Our engineers were faced with the problem of designing the fuselage structure of airplanes to seal perfectly the joints, doors, windows and instruments. The project had to wait because the proper planes weren't even on the drafting boards. Fifteen years had passed before the problem was tackled again.

In 1934, Wiley Post submitted a pressure suit—a blown up pair of overalls made air tight with a rubberized parachute silk and an aluminum oxygen helmet—for experimental test flights to high altitudes. The suit worked, but because of its weight and bulk it greatly impaired movement of airmen.

With development of larger planes, more powerful engines and improved turbo superchargers, AAF engineers again turned to the pressurized cabin.

The first successful pressurized airplane was the XC-35, a modified Lockheed Electra airliner. Engines had exhaust-driven turbo superchargers that maintained an interior pressure under 10,000 feet when at an operational altitude of 25,000 feet, later increased to 30,000 feet.

Cabin supercharging was accomplished by an auxiliary impeller operating on the same shaft as the engine supercharger. Major disadvantage of this system was that the speed of the cabin supercharger varied with the main engine output. When the engine slowed down, pressure within the cabin dropped off. Among other drawbacks, frost formed on the inside and ice on the outside of windows, and airspeed meters, rate of climb indicators and other instruments malfunctioned because of instrument case leakage.

These problems were partially solved in the XC-35 airplane. In principle, at least, AAF engineers were on the right track toward a practicable pressurized cabin system.

Boeing built the ideas into the "307" transport, four-engined Stratoliner which brought "upper-level" flight to the airlines in 1939-40.

Supercharging the 307's cabin was accomplished by a mechanical compressor geared directly to the engine rather than to the turbo-supercharger. Constant speed propellers insured constant engine rpm so the geared compressor would permit the cabin to maintain its pressure during descents. The cabin, however, was only pressurized to 12,000 feet at 20,000 or about 2½ pounds per square inch.

Although the fuselage of the "307" was much larger in diameter than XC-35's, it also utilized the circular cross-section introduced in the Army's first substratosphere aircraft as the best, strongest and lightest shape for pressurized chambers. Theoretically, since air under pressure tends to

equalize in any container—witness the bubble—the ideal pressure-cabin would be a hermetically-sealed sphere. Since a sphere-shaped cabin does not meet the requirements for aircraft fuselage design, engineers turned to a cylindrical fuselage construction with airtight spherical-segment pressure bulkheads.

The AAF next embarked on an experimental pressurizing program with a medium twin-engine bomber, North American's XB-28. This plane used the mechanical engine-geared supercharger which kept an 8,000-foot cabin pressure in the aircraft at 33,000 feet. Cabin heating was accomplished by auxiliary heaters in the ducting that circulated air through the cabin. A plastic compound was sprayed throughout the interior to seal-proof the chamber. Thin rubber strips also were sandwiched between all riveted joints.

The new problem of locating armament properly in a pressurized plane was solved by placing all turrets on the XB-28 outside the pressurized areas. Guns were remotely controlled from pressurized sighting stations.

Constructing an airtight cabin in the B-29 involved a search for new sealing materials and fabrication methods. Rubber cement, used in the XC-35, proved unsatisfactory for blisters, turret wells and the greenhouse nose. Structural joints and ducting necessitated new methods of sealing.

Two types of structural sealing were adopted: compressing sealing compounds between all joints with conventional riveting and riveting all joints as in normal construction and painting or coating with sealing material. In the compression method, adhesive tape is sandwiched between all overlapping joints and riveted to produce an airtight seal. A new sponge-like plastic compound is sprayed over all joints after conventional riveting in the other type of construction.

Both methods effect a seal which allows only ten pounds of air per minute to escape through necessary openings for valves and bulkheads. Cabin air blowers pump four times this amount of air into the cabin every 60 seconds. Regulators maintain normal cabin pressure by "balancing" incoming air against normal air leakage.

The danger of pressure blowing out plexiglas blisters enclosing sighting stations and the pilot's compartment have been eliminated by use of two layers of Lucite with a single ply of Butacite sandwiched in between. These transparent materials have self-sealing properties that restrict a shell hole to minimum size. Discs of the same material permit patching of holes, with inside air pressure holding the disc against the opening. Because the new compound is soft and flexible it does not shatter.

To determine the effect on skin structure of the sudden escape of pressurized air through a shell hole, firing tests were conducted that proved shells had little more damaging effect structurally against a pressurized cabin than against a conventional cabin construction. Explosive decompression, resulting from shell-fire, did reveal one danger spot—it caused air to accelerate at such terrific speeds through the tunnel that the force was enough to catapult a man out either end with dangerous effect. Small doors were installed at both ends to suppress airspeed in the tunnel to a safe point.

The B-29 has three compartments pressurized from the same system. The forward section for the flight crew extends from the nose to a pressure bulkhead just forward of the bomb bay. This compartment is connected by a pressurized tube, 34 inches in diameter, that runs through the bomb bay to the aft pressure cabin where gun stations are located. A third pressure chamber is in the extreme tail, housing the rear gunner.

During pressurization of the first structural test model to determine its safety limits, the cabin was pumped to a pressure three times as great as it would need at its maximum altitude before the nose section blew out.

After experimentation with the mechanical supercharger on the XB-28, we again turned to the turbo-driven supercharger for pressurizing the B-29. The new system eliminated the auxiliary impeller (for cabin air) that was on the engine turbo-supercharger of the XC-35. By bleeding the compressed air from the turbo impeller into the cabin, as well as into the carburetors, the B-29 system is simplified in design and lightened in weight. Cabin air is taken from the turbo superchargers of both inboard nacelles by a system of ducting. Compressed air from either nacelle is sufficient for pressurization of the entire cabin in the event of one engine failure.

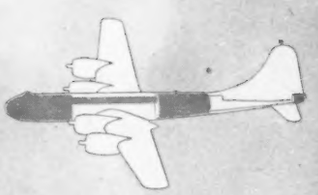
From sea level to 8,000 feet the cabin "altitude pressure" is the same as the altitude at which the aircraft is flying. From 8,000 feet to 30,000 feet, the regulators maintain a constant 8,000-foot pressure inside the cabin by allowing only air above that pressure to escape. Above 30,000 feet the system of supercharging maintains a 6.55 pound per square inch differential in pressure between the cabin and the outside air, or, for example, a cabin altitude of 10,200 feet at 35,000 feet.

Heat in the cabin comes from two gasoline operated heaters and the heat of compression from the cabin superchargers. A thermostat automatically controls the heating units.

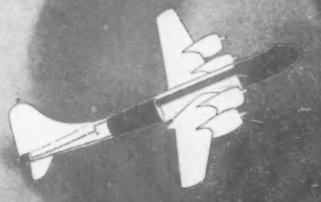
Turrets on the B-29, located outside the pressure areas, are fired remotely from fire control stations that are pressurized. Upper and lower forward turrets rest in large "cans" which drop down into the pressure cabin.

The Allies are not alone in their development of the pressurized cabin. Some ME-109Gs have cabins with a pressure differential that maintains 10,000-foot cabin altitude at 35,000 feet. And reportedly, the diesel-powered JU-86K reconnaissance airplane has been flown above 44,000 feet. Its pressure cabin uses blowers and ducting with an internal turbo-supercharger.

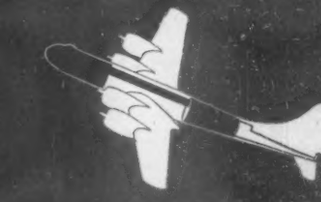
These Nazi planes, however, have not been seen in combat other than on lone reconnaissance missions. Only the AAF is using pressurized cabin airplanes tactically in large numbers. ☆



Above 30,000 feet, a 6.55-pound per square inch differential is maintained between the internal and the external air pressure.



From 8,000 to 30,000 feet, regulators maintain a constant 8,000-foot pressure by allowing only air above that pressure to escape.

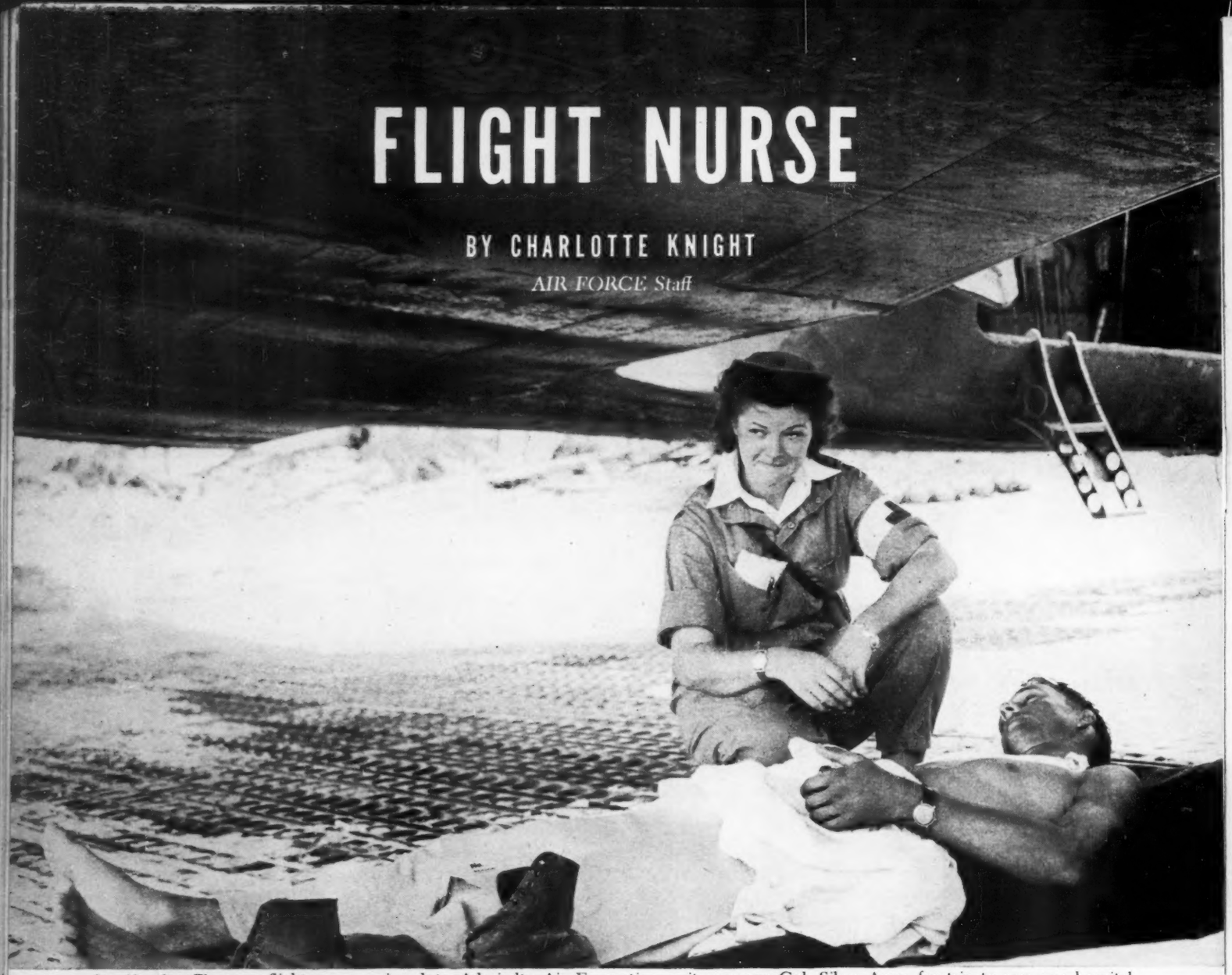


From sea level to 8,000 feet, pressure inside is the same as atmospheric pressure at the altitude at which the plane is flying.

FLIGHT NURSE

BY CHARLOTTE KNIGHT

AIR FORCE Staff



Lt. Harriet Thomas, flight nurse assigned to Admiralty Air Evacuation unit, prepares Cpl. Silver Amos for trip to rear area hospital.

Soldier badly wounded on Bougainville is quickly unloaded at Guadalcanal base hospital under the supervision of Lt. Rial Smith.

Pistol-packin' Flight Nurse of the 5th Air Force checks her ambulatory patients with pilot who will fly them from Hollandia to Lae.

If there were a popularity contest in the AAF, these competent, courageous girls would win it hands down

Her plane loaded with wounded military personnel, Lt. Bernice Harrington climbs aboard with her parachute, all set for trip from Guadalcanal to United States.

FLIGHT nurses at a 9th Troop Carrier base in England had been alerted for a month. Across the field was a stockade filled with paratroopers ready for an order to scramble into the C-47s. That afternoon a car with a four-star insigne had been seen on the field. But restrictions had been on, then off a dozen times and Flight Nurse Frances Sandstrom thought surely she would have time to enjoy the lonely luxury of a soapy shampoo. She went to the shower room, turned on the water, soaked her hair—and the invasion began.

Lieutenant Sandstrom dressed hurriedly, pushed her dripping hair into a knitted GI cap and ran out to the flight line to join the other nurses.

"It never fails," she explained breathlessly. "If I wash my hair, something always happens!"

The Skytrains thundered down the runway, loaded with paratroopers. Nurse Sandstrom watched them go, too excited to feel the water trickling out of her cap and down her neck.

"We stood there until they were all gone, then we waited for them to come back," she said. "We knew most of the crews, as we had been restricted to the base so long. I guess we nurses were like a cheering section at 0200 when they began coming back. As soon as we could see the number of a plane we'd yell, 'There's Jack . . . there's Mike . . . there's Jimmy, hooray!' and we kept it up until every plane was safely back.

"Next trip they hooked up the gliders and took off again with airborne infantry. We knew the first surprise was over, that the Germans would be expecting them. And believe me, this trip we really sweated them out. After a long time they started coming back, but this time it was different. The planes were shot up. Some of the crews were wounded, and some of the C-47s had ragged holes in their wings. We waited on the line, counting each one—and finally, again they all got back."

The nurses had not long to wait and just watch the skies, however. Exactly four days later, five nurses from that base flew to France. On D-plus-9 Nurse Sandstrom made the first of her many trips to Normandy.

"We took off that morning and flew over the Normandy beach and landed. We were the first plane to land on the first steel mat strip put down by our advance engineers. They had just finished the job when our C-47 came in.

"Wrecked gliders were scattered all over the countryside. The troops were fighting only three miles away and we could hear land mines exploding around us. I was told to stay inside the plane, since all German snipers had not been cleared out and were taking occasional shots across the landing mat.

"About sundown we went back to the beach and picked up our patients, 16 litters and two ambulatory cases. This was a clearing station where men were brought in ambulances from where they had been wounded.

"I had my first contact with new invasion casualties when the loading teams brought my patients aboard. Most of them were badly wounded. They were dirty, right out of the foxholes. Many of them were suffering, but I had not one murmur of complaint from any of them. It was hot and dusty, but they were calm and asked for nothing except water. Each time I gave a man a drink he smiled, or tried to, and thanked me as if I had done something very heroic and wonderful."

Lieutenant Sandstrom's plane landed at a holding station in England and her patients were taken off by an unloading team. Watching her men taken off the plane, she saw that they were handled gently and assured them that the next hop would land them in a general hospital.

"The men all looked back from their litters and said goodbye," she said. "The biggest thrill I ever got was when one corporal, badly wounded, looked me in the eye and said, 'Nurse, I want you to know how much I appreciate this. I've never had such consideration before.' "

Nor is the corporal alone in his gratitude. Men in every theater know these women by now. Seventy-two hours after U. S. forces landed on Tarawa, flight nurses were there too, helping to evacuate the wounded from that bloody beachhead to hospitals in Hawaii and the finest medical care a man could get.

They were at Bougainville, at Sicily, Salerno, Anzio. The Burma front—and the south of France. Name any big push; flight nurses were on the scene within a matter of hours after our troops moved in. They were the first white women on Munda, Guadalcanal and the other South Pacific islands since war began; they were the first U. S. Army nurses to reach China.

They get around in a global way, but that's only part of the story. They also have had to pay a price for choosing this duty—the soldier's price. Several of them have given their lives in this service since war began, others have been shot down. Thirteen landed in enemy-held territory and spent months escaping. A few have had to "hit the silk." Many others have had brushes with the enemy—and too close for comfort, they will admit. Nurses flying Southwest Pacific routes have often arrived at a field to find it on Condition Red. Others have spent many long hours in Guadalcanal's foxholes during bombings—15 raids in 5½ hours was the experience of one nurse.

To the South Pacific went some of the first flight nurses graduated from Bowman Field's School of Air Evacuation. This was early 1943. Men who were in that theater can add some chapters of their own about the valor of these women. They saw them put up with everything men had to face—scorching suns, torrential rains, swarms of mosquitoes everywhere, the presence of malaria and dengue fever, inadequate quarters, chow out of mess kits while standing ankle deep in mud.

If women ever had a chance to prove they could take the rough with the smooth, this was it. There were no quarters for them on Guadalcanal at first, so the overnight stop on the long trip from New Caledonian headquarters was generally Espiritu Santo. Up at 0100, takeoff at 0300, arrival at Henderson Field at 0730 to pick up battle casualties sent down from the fierce fighting up New Britain way. When

the plane landed, a jeep would drive up with coffee and sandwiches which would be gulped down between swatting the flies away. As a matter of fact, K rations eaten aloft constituted the chief bill of fare for these commuting nurses. There was never time for a square meal for days at a stretch.

Things picked up considerably with the construction of Guadalcanal's "Hotel de Gink," a hostelry in name only, which did at least provide a screened-in messhall of comparative luxury to nurses stopping for brief periods between flights.

The first landings which flight nurses made on that battle-torn island, incidentally, are not likely to be forgotten. Most of the men stationed there had not seen a white woman for more than a year. Word that a woman had landed spread quickly throughout the field, was as quickly denied by GI wiscacres who knew it couldn't be possible. Nevertheless, hundreds crowded around just to witness the miracle. Soldiers too far away from the runway used binoculars. And no matter how many times nurses have flown in since, there continue to be astonished cries of "Good Lord, there's a woman!"

"Just as I was stepping out of a jeep to enter the Hotel de Gink once, a boy ran up to me and shook me hard, as though he couldn't believe I was actually human," Nurse Gerda Bouwhuis related. " 'Are you the real McCoy?' he shouted. 'I haven't seen a white woman since I said goodbye to my wife 18 months ago. I'm going to write home and tell her I've finally seen an American girl and that it was almost as good as seeing her.' "

Flight nurses are real people, not given to any pretenses. Of course they get their share of attention wherever they are, but they claim this is because they are merely symbols, that they only serve to remind a man of the wife or sweetheart he left behind. And they're frank enough to admit that upon occasion this can be slightly annoying, too. "One night at a party in New Caledonia," reported Lt. Seraphine Petrocelli, "there were about a hundred fellows around and I was the only girl. Sure, it was wonderful. A lieutenant and I walked down to the beach and sat on a rock and looked at the moon. But, do you know what he did? He spent the entire evening telling me about his girl back home!"

The nurses' dates, by the way, took on an aspect rather more practical than romantic in that theater. Nurses could afford to be independent—and admitted it. They accepted invitations with considerable foresight. During those first

(Continued on Page 62)

The Intercom

As a medium for the exchange of ideas, AIR FORCE presents these answers to its Question of the Month. Replies are those of personnel recently returned from combat duty in the areas indicated.

THE QUESTION: If you had to change your classification, what would you want to do?

Lt. Morris Silberman, navigator, Italy: "I'd still like to be a navigator. You get a kick out of leading a flight over and finding the target, then hitting it right on the nose. That thrill can't be duplicated anywhere in the AAF. You are working all the time, keeping busy, and there isn't much time to worry about what might happen. I'm completely sold on the importance of a navigator to the success of his mission and I'd just as soon keep the same job I have now. It's all teamwork, with everybody depending upon everybody else, but I feel the navigator is one of the key men."

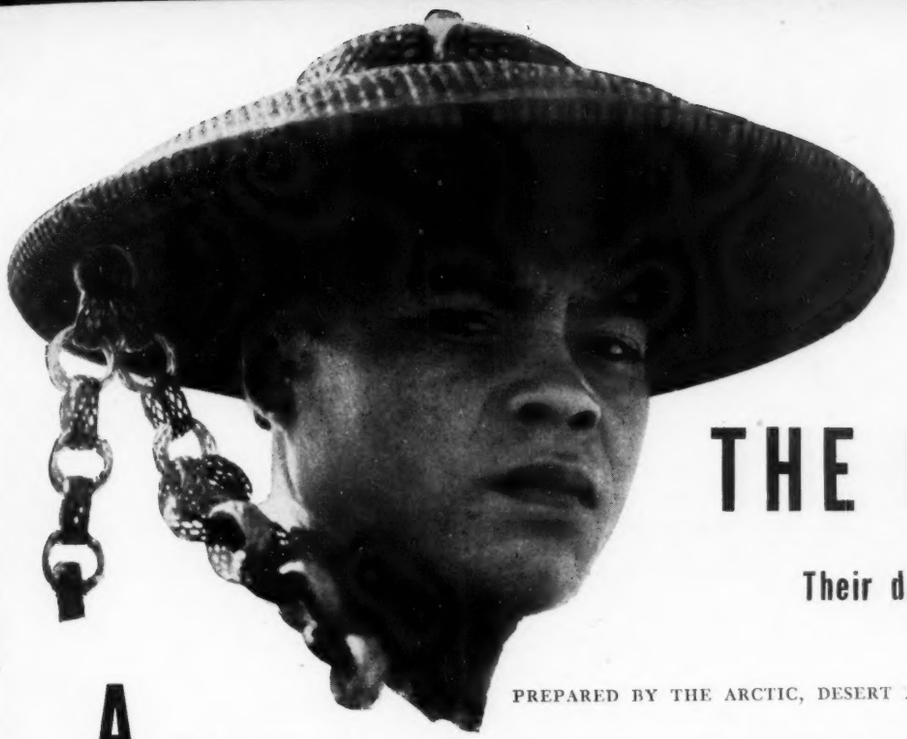
Sgt. Joseph Vanek, gunner, Southwest Pacific: "I'd put in for the job of fighter pilot. The bomber pilots have to worry about how good the other fellows in their crews are, while a fighter pilot can depend upon himself entirely. If he thinks it wise to go into a fight, he goes in; if he thinks not, he hangs back for awhile. It's that feeling of independence that appeals to me. I've been in B-24s, 25s and 26s, but give me a single-place ship everytime. The fighter pilots seem to know how to take care of themselves regardless of what the conditions may be."

S/Sgt. William Wright, gunner, England: "I'd like to be a radio operator on a C-54. I've always liked to play around with radios and I think the job of a radio operator has a good future in it if you follow it through. I have picked the Skymaster because, in my opinion, that's the type of plane we're going to have when the war's over. I've seen most of England and our missions have taken us over a great part of Continental Europe, but I still would like to do some more traveling. I think they ought to change that certain slogan to read, 'Join the ATC and see the world.'

S/Sgt. Edward Walters, gunner, CBI: "I would want to go to school to become an aeronautical engineer. I think that would mean a real future after the war. A lot of new planes will be coming out and I'd like to get in on the designing and constructing of them. Now that I have had some experience, I think I have an idea of what should be expected of our planes. Some day soon, everybody will be traveling around in those family airplanes and I want to get in on the ground floor now. In the future, jet propulsion will be a big thing and I want to learn something about it, too."

S/Sgt. Dennison Whitford, gunner, Italy: "I'd want to be a mechanic. That would give me something useful to do after the war. A mech's job is the most important in the air forces. Ordinarily, he works 24 hours a day but when things get rough, he puts in 25 hours. Everybody who flies really appreciates the work of the ground crews. Those boys are in there pitching all the time. Being an aircraft mechanic gives a man an opportunity to learn a trade for the postwar world. I think it would be a good idea to know something about engines for a job after the war is over."

Lt. Michael Senkow, navigator, Southwest Pacific: "The fighter planes for me. You're out there alone with nobody to bother you and nobody to depend on you. That makes it much less of a nervous strain. A bomber pilot in a B-24 has nine other men in his crew. That's all right, but I want to live and die by my own judgment. Then, too, the fighter pilot has a feeling of individuality when he is flying alone. I'd pick the P-38 for my plane. This famous fighter has range, speed, firepower and versatility. The two engines of the Lightning give you an added safety advantage." ☆



THE PHILIPPINES

Their day of liberation is not far off

PREPARED BY THE ARCTIC, DESERT AND TROPIC INFORMATION CENTER, AAFTAC

A scarred, weather-beaten B-25 coughed its way off the dusty runway and almost brushed the jungle growth at the end of the strip as its nose turned toward Australia. The Mitchell's insides fairly bulged with its overload of bedraggled officers and men. Scores of others were left behind on that little Mindanao airfield to await their fate at the hands of the victorious Jap. The last evacuation plane had left the Philippines.

That was 30 long months ago.

Now, we are on the way back. The Jap long since has reversed his field, and his position on those islands that stand like rocks astride his supply line to the south is becoming more and more shaky. Early in September, our long-range B-24s already were pounding Jap shipping in the lower islands, particularly around Mindanao, and blasting the airdromes of Davao in a slowly tightening air blockade.

In many respects, the Philippines are an inner-door key to the ultimate defeat of the Japanese. When we recapture the islands, we will have more than a plug with which to stop the vital flow of enemy raw materials from the rich East Indies. We will have another platform for land-based air power to strike directly at Jap strongholds in China, Formosa, French Indo-China and the enemy's home islands. And among other tangible military benefits, we will have many fine anchorages for our Navy.

On the less material side of the ledger will be the psychological factor of coming back, avenging Bataan, Corregidor, Clark, Nichols and keeping a promise—independence for the Philippines.

A few of our airmen who fought a losing battle there nearly three years ago may be going back to the Philippines, but for every one of them there will be thousands who will be seeing the islands for the first time.

What will be the operating conditions?

How is the weather?

What will be the maintenance problems?

What about the natives? Health conditions?

What is the terrain?

How are the communications?

From the viewpoint of AAF personnel, perhaps the most important operational factor in the Philippines is the weather.

Heavy cumulus and strato-cumulus with bases at an average of 1,500 to 2,000 feet are characteristic of the area in all seasons. Over most of the islands, two-thirds to three-fourths of the sky is cloud-covered and complete overcast is frequent.

Topography causes great local variation in cloudiness. Areas exposed to the northeast have heaviest cloud formation in winter. Those exposed to the southwest have heaviest cloud formation in summer. Over the entire area, the clearest months are April and May.

Turbulence is severe in cumulo-nimbus clouds and is extreme in well-developed typhoons. Flyers may best avoid turbulence in CBs by approaching them either at an altitude in excess of 20,000 feet or by flying through the rain squalls below the base.

Wind speeds generally are light to moderate, their direction varying greatly with local topography. Horizontal visibility generally is good but occasionally it is restricted because of fog, cloud, mist, haze or rain. Fogs rarely last long after sunrise. Clouds are the greatest hazard and are extremely bad on mountain slopes during all seasons.

Temperatures in the Philippines are uniformly high with high relative humidity. However, changes in the predominant wind pattern and variations in local topography produce marked differences in the weather of various parts of the islands.

In all seasons, temperatures normally range between 70 to 75 degrees in the early morning to 85 or 90 in the afternoon. Average temperatures are lower in the highlands, with a decrease of three to four degrees per 1,000 feet increase in elevation. Relative humidity averages 75 to 85 percent during the entire year.

Rainfall is heavy throughout the islands. Most places receive an average of 50 to 150 inches a year. There is comparatively small seasonal variation in rainfall. Areas exposed to the northeast generally are wet in all seasons but have the heaviest rainfall in the winter. Areas exposed to the southwest are relatively dry in winter and spring, with heavy rainfall in the summer and fall. Over most of the Philippines, rain normally falls 125 to 225 days per year, usually in the form of intense showers.

Typhoons, the small but spectacular storms of the tropics, hit only the northern and central islands of the Philippines. The Sulu archipelago and Mindanao, which have an equatorial climate, are out of the typhoon belt. Extremely hazardous to flying, typhoons may hit in any month but are most frequent during the period from July to November. Depending on how close they come, they may mean bad

THE PHILIPPINES

DISTANCES SHOWN IN STATUTE MILES

PHILIPPINE FACTS

Number of Islands: 7083
(2441 named, 4642 unnamed)

Population: 17,000,000

Total Area: 114,830 square miles (Only 462 islands are more than 1 square mile).

Eleven islands account for 94 percent of total area.

LARGER ISLANDS	(Square Miles)
Luzon	40,814
Mindanao	36,906
Samar	5,124
Negros	4,904
Panay	4,445
Palawan	4,500
Mindoro	3,794
Leyte	2,800
Bohol	1,554
Masbate	1,255
Cebu	1,695

POPULATION LARGER CITIES	
Manila*	623,500
Cebu	146,820
Iloilo	90,480
Legaspi	41,470

COMPARATIVE POPULATIONS PER SQUARE MILE	
Philippines	143
Java	800
Borneo	9
U. S.	45

*Excluding suburbs

FOREIGN GROUPS	
Americans	8,700
Chinese	117,500
Japanese	29,000
Spanish	4,600

RELIGIOUS GROUPS	
Roman Catholic	12,603,300
Aglipayan*	1,573,000
Mohammedan	677,900
Protestant	378,300
Pagan	680,000

*Independent Philippin Catholic

PRINCIPAL EXPORTS

- Sugar
- Coconut products
- Abaca (manila hemp)
- Tobacco products
- Lumber

MINING PRODUCTS

- Chromite
- Iron
- Manganese
- Copper
- Gold
- Silver

weather for periods of from two to seven days.

The tropical climate of the Philippines poses serious problems in the maintenance of aircraft, airfields and other equipment. Failures are caused by condensation, rust and other forms of corrosion which are by-products of the high humidity and fairly high temperatures. The action of living organisms, such as bacteria, fungus and insects, is likewise accelerated. Organic acids in the damp soil cause corrosion and are responsible for the destructive "corrosion fatigue" of metals. In some areas dust forms quickly between rains and affects the operation of engines. Preventive maintenance procedures employed in other tropical theaters apply equally in the Philippines.

Comparative size of the islands.

The population of the Philippines, 17,000,000 according to 1941 census figures, is unevenly distributed among the islands. Luzon accounted for almost half of the number and Mindanao, the second largest island, nearly one-eighth. Panay, Negros and Cebu are the only other islands with more than 1,000,000 inhabitants. In 1941 Manila, the largest city in the Philippines, had a population of 684,000, including suburbs.

The majority of Filipinos are Indonesians of southeast Asiatic origin. The Christian Filipinos, numbering 90 percent of the population (79 percent Catholic), are divided geographically into groups whose chief difference is language. The most numerous groups are the Tagalogs (3,325,000) who live in central Luzon, the Visayans (7,100,000) who live in the central and southern islands, and the Ilocanos of northern Luzon. The people of the island of Mindanao and the Sulu archipelago are Moros who are Mohammedans. They number between 500,000 and 600,000. In the mountainous regions of Luzon and Mindanao and the Sulu archipelago are found the Pagan tribes who number 300,000 and 400,000. Negritos are still fairly numerous in mountainous areas.

At the outbreak of this war, the Philippine population also included about 8,000 American civilians, 120,000 Chinese and 30,000 Japanese. The Chinese were mostly small shopkeepers; the Japanese, many of whom lived near Davao, were farmers, craftsmen and fishermen. Among the foreign population were also about 4,000 Spaniards, a thousand Germans, and other European nationals.

Eight distinct languages and 87 native dialects are spoken in the islands. Approximately 27 percent of the population knows some English. Spanish is spoken by three percent, Tagalog, the official native language of the Philippines, is spoken by over 4,000,000 people. Bisayan is used by about 45 percent of the population but it lacks official recognition partly because it is not spoken in the Manila area.

Literacy is relatively high in the Philippines. About half of the natives can read and write at least a little of one or more of the leading languages. Many magazines and periodicals written in English were circulated prior to the Jap occupation. At the time of the invasion, there were 32,000 radio receiving sets in the islands.

The majority of the native Filipinos leads a simple agricultural life. Three-fourths of the Filipino males are farmers. They eat a simple diet of rice, fish and vegetables and live in primitive huts made of nipa palm and bamboo. They have few possessions and their farming implements are crude. The carabao, or water buffalo, is the national beast of burden. Only five percent of the Filipinos are employed in industry, much of which is concentrated in and around Manila.

Class distinctions in the islands are very marked. The great masses of farmers belong to the lower class. The upper class is composed largely of landowners and wealthy merchants who own modern homes and live in comparative luxury.

Although usually calm and friendly, the Filipino is subject to emotional outbreaks. As a general rule he is law-abiding and passive. However, local violence has occurred when upper class landowners oppressed their tenants. The Filipino has much personal pride. It is a mistake to speak harshly to Filipino laborers or to ridicule them in front of others. The tropical environment has made the Filipino easy-going and he often shows a lassitude which Americans may mistake for laziness. However, Filipinos make good workers when properly supervised and employed at an agreed price for a given job.

The Mohammedan Moro is fanatical in his religion and extremely independent. Often military intervention has been necessary to put down Moro rebellions. The Moros have no use for the Christian Filipinos, but they respect American Christians because the latter have stood up and fought them in the past.

The Pagans are a proud people who have resisted christianizing. Through schooling and police supervision the head-hunters among them have been discouraged from their old practice. The Pagans have proved to be the most stalwart of the Filipinos and have carried on active guerrilla warfare against the Jap since organized resistance ceased.

Under American supervision and administration, health conditions in the Philippines improved to a point where they were better than in most other tropical areas. Cholera and bubonic plague were practically wiped out and smallpox was greatly reduced. However, the risk from disease in the islands is much greater than in the United States, and since the Jap occupation, outbreaks of cholera and other epidemics have been reported. Most of the diseases which are present can be avoided by common sense application of certain precautions that must be observed by AAF units and individuals.

Mosquito-borne diseases are the most prevalent. Malaria is present on every island, and Jap radio reports indicate that it is more common now than before the war. It was widespread among American and Filipino forces on Bataan and proved an important factor in their ultimate defeat. Malaria is confined to the hilly regions under 2,000 feet elevation. The flat plains and coastal areas are not malarious. The disease is most common during the rainy season. Of less prevalence are two other mosquito-borne diseases, dengue and filariasis, although the type of filariasis common among the natives of the Philippines is unlikely to affect AAF personnel.

Standard precautions against mosquitoes should be rigidly observed in the islands.

The islands have a plentiful supply of water from surface streams and artesian wells. However, all water should be disinfected or boiled before use because of the prevalence of diarrhea and dysentery, and the recurrence of cholera. Men should not swim in ponds or streams not certified by a medical officer; the danger from blood flukes (schistosomiasis) is great.

Native fruits and vegetables are dangerous. Usually they grow in soil contaminated by human wastes or are washed in polluted water. All fruits and vegetables must be boiled to prevent them from transmitting intestinal diseases.

Because it is difficult to keep clean and dry in the tropical climate of the Philippines, minor wounds, such as cuts, scratches, insect bites and leech bites, become infected easily. Even the smallest wound should be cleaned, disinfected and covered with adhesive.

The economic system of the Philippines in peacetime was based on a simple agricultural life. Most of the cultivated area, about 15 percent of the total land area, was devoted to food crops, principally rice. Methods of cultivation were primitive, although the Ifugao rice terraces in northern Luzon were considered one of the great engineering feats of the world. Corn, coconuts, sugar, hemp and tobacco also were grown in quantity.

Little manufacturing, as we know it, existed in the Philippines before the war. What there was consisted mainly in the processing of export crops, and handicrafts such as embroidering, hat-making, cigar-making and clothing production for home consumption. Other industries included mining, lumbering and a little fishing.

Forest covers about 64 percent of the Philippine land area. Still present in much of the rough, uninhabited terrain is primeval rain forest which generally is made up of tall trees with a dense overhead canopy 100 to 140 feet high. This foliage shuts out the sun and makes the forest floor dark and damp.

In many sections, second-growth jungle of varying height and density or grass covers territory once under cultivation or cut over by the natives. At altitudes above 3,500 feet may be found moss forest which is dense and generally dripping wet. On the higher mountain slopes, however, particularly in northern Luzon, there often are pure stands of pine.

Mangrove swamps are located along protected coasts which have low muddy flat lands. A network of narrow, fairly deep water channels frequently interlaces the swamp areas. Nipa palm swamps may be found in the drier, less salty areas beyond mangrove swamps. Large areas of floating grasses and sedges appear in the interior of Mindanao, while extensive natural grasslands cover the areas of lesser rainfall on that island.

The common type of Philippine grass is called "cogon." Very coarse and dense, it may be anywhere from three to eight feet high. Wheels-up emergency landings may be made in cogon grass.

There are no large and dangerous wild animals in the forests of the Philippines. Largest of the native species is the small buffalo, the timaru, confined to the island of Mindoro. Other beasts include wild pigs, shrews, lemurs, skunks, otters, civet cats, squirrels, small wildcats, rodents, tarsiers, monkeys, deer, dugongs, porcupines and anteaters.

Among the birds of the Philippines are ducks, coots, gallinules, rails, shorebirds, doves, pigeons, hornbills and snipes. Although the island snake population generally is harmless, some of the snakes are deadly. Chief among the latter is the cobra, found mostly in rice fields and on the edges of forests. Crocodiles often are found in deep rivers and creeks inside mangrove forests.

Many smaller forest pests are to be avoided. They include black widow spiders, tarantulas, scorpions, centipedes, ants, wasps, land leeches and various biting bugs.

Philippine waters, both fresh and salt, are rich fishing grounds. Common varieties include rays, sawfish, eels, mullet, snappers, pompanos, catfish, carp and sharks.

The 7,083 islands comprising the Philippines have coastlines totaling about 12,000 miles, nearly twice that of the United States. Before the Jap occupation, there were 11 official ports of entry in the islands. Manila was the leading port, and Iloilo next in importance.

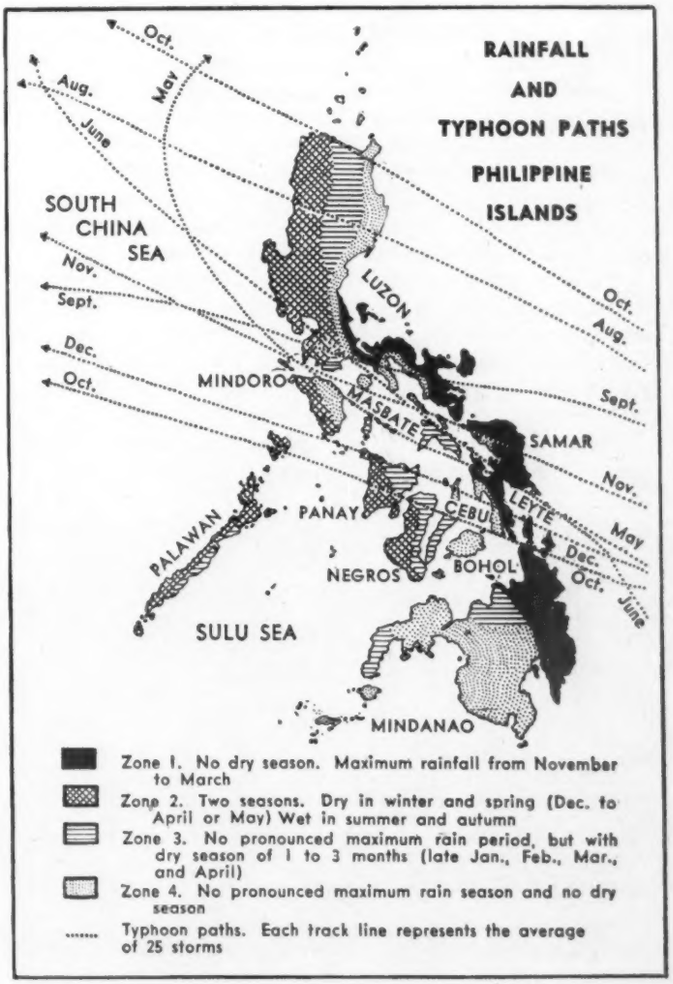
Principal railroad lines of the Philippines are on the islands of Luzon, Panay and Cebu. The main line of the railroad on Luzon extends 459 miles from San Fernando in La Union Province to Legaspi in Albay Province. The line on Panay connects Iloilo and Capiz; that on Cebu connects Argao and Danao.

The main Philippine highways, built by the Insular Government, form no network as those in the United States because the Philippines are not industrialized and because much of the island population is concentrated on the coasts where water travel is convenient. There were 14,200 miles of roads in 1940, of which 7,500 miles were designated first class, 4,600 second class and 2,100 third class. Two-thirds of the total mileage of good roads were on Luzon, centering around Manila.

As of September, 1941, the Philippines had more than 85 airports and landing fields. Three-fourths of them were operated by the Commonwealth Government. Although most of the airfields were commercial, the number of military air installations was increasing shortly before the fall of the Philippines. It is reasonable to assume many additional facilities have been constructed by the Japs since their occupation.

The conquest of the Philippines by the Japanese provided one more chapter in the lively and chaotic history of the islands. Although they have been a melting pot of various races and cultures for many centuries, the white man had been continuously influential since the 16th century in shaping their destiny. The islands were discovered by Magellan in 1521, colonized by Spain in 1565 and ceded to the United States in 1898 following the Spanish-American war.

Schooled in democracy under our government, the Philippines were well on the way to gaining their complete independence when the Japs stepped in and halted the process. In our compact with the Philippines, we had set 1946 as the year in which they would take their place in the family of free nations. Destruction of the Jap and his power to wage war will make good that promise. ☆



OUR PIGEON

"SQUAB on toast," the rather derisive cry which crew members customarily made when someone put a crate of pigeons in their airplane, is no longer considered funny in the AAF. "I would just as soon eat broiled navigator," claims a pilot lately rescued from a Central American swamp after a pigeon had carried out his appeal for help.

The AAF's homing pigeons bail out into a 350-mile-an-hour slipstream from 35,000 feet, fight wind and cold over hundreds of miles of ocean and get home with messages that often mean the saving of men's lives.

Pigeons are being used by the AAF to supplement other forms of communication. They carry messages during emergencies when radios fail or can't be used. Crash landings often wreck radios, and a pigeon can carry word to an aircraft's base of the exact location of the crash, the condition of the crew, and whether medical aid is needed. As a silent, dependable means of communication, they are useful in many phases of combat operations. In airfield to airfield communication, they carry messages between main bases and satellite fields. Over isolated territory they are used for intercommunication, from island to island, or from one airbase to another over enemy territory. Pigeons come in handy when the enemy jams the radio. Isolated forces can be supplied with birds by parachute drop-containers, thus enabling them to communicate without giving away their position.

Pigeons in this and other wars have maintained fine records. In the first World War, nearly 1,000,000 pigeons carried messages, and statistics show that more than 90 percent of all missives were delivered. The record is even better in this war even though many of the routes flown by the sturdy birds have been over water.

Right now there are more than 20,000 trained pigeons in the AAF Pigeon Service. Activated February 15, 1943, it has done what many persons considered impossible—changed the return addresses of homing pigeons. This agency has taken adult pigeons, moved them thousands of miles and taught them to home on their new base instead of their old. Until this war, few even dreamed that homing pigeons could be trained to home distances of 500 miles on a new location within a few weeks. Another major achievement has been the training of "two-way" birds, which fly to a point 75 miles away and then return.

Pigeon units are organized into companies, each company being divided into four platoons of six sections each. The sections are divided into three-man detachments, each handling from 120 to 240 birds. One detachment is normally sufficient for an airfield, and the men are known as pigeoneers. The radio operator is in charge of the birds in his plane.

Maj. Thomas MacClure, an ex-prospector who used pigeon messengers in times of peace to take his claim records from mine locations in the wilderness to registration offices in the towns, is chief of the Pigeon Service.

Pigeons released in flight are tossed head first into slipstream.

How to release a pigeon: *If you run into trouble and have a set of two pigeons on board, take map and message paper from the top of the pigeon compartment, plot your position on the map, write details in the message. Roll them up, place them in the message holder and tape it on the front of a pigeon's leg. If there is a paper sack in the pigeon container, slit it and wrap the pigeon in it. Face him head toward the engines, and toss him out. If there is no sack, fold his wings against his body and follow same procedure. The second bird can be released after a crash landing or ditching. In case there is not time to attach messages, release pigeons anyway. They have numbered leg bands, and the AAF Pigeon Service knows which birds are on your aircraft. When the birds return to their base, a search for you will be begun.*

Pigeons for airplanes are carried in special containers which have room for two, four or more birds. Each container has a top section holding a message book, map overlays, message holders, pencils and bird food. The message holder can carry a map overlay on paper nine by nine inches and 1/1000th of an inch thick, a duplicate of a previous message and an original message. The holder is strapped to the front of the bird's leg so as not to interfere with the pigeon's walking, in case it gets tired of flying—sometimes one does—or with tucking its legs under the body while in flight. Each bird carries a numbered leg-band, and in case there is not time to attach a message, release of the bird will indicate to the home base that the airplane is in trouble.

The usual procedure, if there is time, is to release one pigeon while in flight, and another after a crash landing or ditching. It is a considerable shock to a 13- or 14-ounce bird to be tossed out into the slipstream of a four-engine plane going some 300 mph, but the birds are able to weather it. Usually the pigeon is wrapped in a split paper sack and released, head facing the engines to give him the benefit of his natural streamlining as he bucks the wind. Pressure

The AAF's homing pigeons are recognized as soldiers, and good ones, with guts, endurance and a high record of performance when the going is tough

AIR FORCE

of the slipstream holds his wings close to his body until the slip is gone. Then the bird fights his way out of the bag, spirals down to his favorite ceiling of from 300 to 400 feet and sets out for home. Pigeons can be released without the paper sack, but it is better for them to have protection. Oddly, the lack of oxygen and the intense minus-50-degree cold at 35,000 feet doesn't seem to bother the birds. The average speed of a homing pigeon is from 35 to 40 mph.

The Caribbean Wing, an AAF bird installation, has lofts at each of the bases along the route from Miami to Natal, and any plane setting out for any distance from Miami will carry aboard two sets of pigeons. One set—a set consists of two birds—will home on Miami and the other will home on the destination. In case the plane runs into trouble less than the halfway mark on its route, the radio operator will release the Miami birds with messages which give location, time, identity of plane and any pertinent information such as injuries or nature of trouble. In case the plane is nearer the other base, it will release the alternate set. In a forced landing, all birds will be turned loose.

The pigeons get about the same training as a combat crew—basic, orientation, relocating, staging, more relocating and orientation, and plenty of advanced training. The instruction must be conducted carefully because a pigeon not relocated will go "over the hill" to its old base in a hurry. This applies especially to full-grown pigeons, which before the war never would settle for more than one home. For example, a South Bend pigeon, when loose, would always head for South Bend, and so up to a few years ago the only method of getting a pigeon which would return to Miami was to bring in a few breeders and raise their squabs. These young birds would look upon Miami as home. The Pigeon Service, however, has developed a resettling system which will cause a South Bend pigeon to look upon Miami as wistfully as upon his birthplace.

One bird has this on its service record:

Training: Conditioned to fly 300 and 400 miles at 1307th Signal Pigeon Company, Aviation, Lake Charles, La.

3 Mar 44: Shipped to Caribbean Wing Detachment, Miami, Fla.

21 Mar 44: Resettled, given seven short exercising, conditioning and orientation flights.

8 Apr 44: Homed from the 300-mile station in 8 hours, 58 minutes, at 33.55 mph.

29 Apr 44: Homed from the 400-mile station in 8 hours, 43 minutes, at 45.95 mph. Weather conditions good.

10 May 44: Homed from the 500-mile station in 16 hours, 4 minutes, at 30.67 mph. Weather stormy and wet.

There are times, however, when a pigeon isn't quite resettled. One of the most noted of such birds is a husky, nostalgic pigeon which was in the process of being taught to consider St. Lucia Island in the lower Caribbean as home. He got loose one day and turned up five days later at the place *he* liked—Morrison Field, some 1,750 miles away. This trip, over water, is considered something of a record. The longest flight on the books was an authorized one of 7,200 miles covered in 21 days.

Occasionally, the birds are the victims of hawks. Once an attempt was made to have them carry whistles which would be blown by the rush of wind as the birds flew thereby scaring hawks away. The plan didn't work because of the added weight. Hawks and accidents account for a few pigeons, but they have an excellent record of duty performed. They're game and tough, and they will fly on and on as long as there's a heartbeat and a breath left in their bodies. They will get along without water for 24 hours, without food for twice that long. They'll handle up to one-third of their own weight packed on their backs, and more than once they have flown in from an advanced post with photographic negatives in a back cylinder. They have fluttered in to fall and die of exhaustion after bringing their message home; they have come through with severe wounds from enemy gunfire, and several have received official citations for outstanding and courageous service. ☆

Pigeons are invaluable in carrying messages from persons adrift.

ILLUSTRATIONS BY CPL. LOUIS S. GLANZMAN

Bulldozers and Bullets

By MAJ. HERBERT O. JOHANSEN
AIR FORCE Overseas Staff

ONE night, while the ground fighting for Saipan was still in progress, a lieutenant in the aviation engineers drove his jeep to the end of an airstrip and spotted one of our planes burning. Two enemy snipers had fired it. As the Japs sprinted toward the safety of a canefield, the lieutenant grabbed his carbine, but the gun jammed. The Japs were nearing cover, so he stepped on the jeep's throttle and lit after them. He caught up with one of the Japs and slapped the jeep into him. The Jap went sprawling, but jumped to his feet and kept on running. The jeep whirled around and slammed into him again. The Jap was buried the next morning.

When the aviation engineers of the 7th Air Force Service Command landed on Saipan on June 30, D-day plus 5, their job was to build airstrips. In order to do that job, they had to fight Japs, dodge artillery fire from nearby Tinian and withstand three strafing attacks. The situation was so tense they encircled their tent area with .50 caliber machine guns. No surveying party went to work without an accompanying band of engineer-riflemen. Engineers in half tracks maintained a constant patrol. For a short time, the engineers' guns were the field's only antiaircraft defenses and their half tracks provided the only close-in ground defenses. When they started surveying a fighter strip on the southeast end of the island, a tank battle was raging in full view half a mile away. The actual front line was just one mile to the north.

Saipan is no longer news. It is now a full-scale operational airbase. The aviation engineers did not get in on the battle headlines, but they built the airfields that bring us closer to the headline of headlines: Japan's defeat.

The battle for airbases is always news, and the capture of an island is only half that battle. Operational airbases such as we are now using on Saipan and dozens of similar islands in the Pacific are not captured. They are built—often under enemy fire, always against unbelievable obstacles, with inadequate equipment, by men fighting time, nature and the enemy.

The job of Saipan was done by five battalions of the 7th AAF Service Command engineers. When their work was finished, our bombers and fighters started using the fields to continue their operations along the airways to Tokyo.

A natural question is, "What about the Japanese airfields we captured? True, they were pretty well bomb-battered in the process, but why not just fill the craters, move in our aircraft and start operations?" That's a natural question, only don't put it to the aviation engineers who were there. If

Our aviation engineers had to fight the Japs, dodge artillery fire and withstand strafing attacks to construct airbases on Saipan

rehabilitation of captured airbases were their only problem, life would have been easy for them.

Unfortunately, Jap airfields are rarely suitable for our type of operations. Not only must bomb damage be repaired, but also existing facilities must be adapted to our requirements. Then, to accommodate the increasingly heavier and more intensive land-based air operations in the Central Pacific, the aviation engineers must make two or three airfields grow where the Japs had planted but one.

Aslito airfield on Saipan is an example. Although it was planned in advance that Aslito should be a bomber base for our operations, the first job was to put it in shape for the immediate use of land-based fighter planes, especially the fast-landing, heavy Thunderbolts that had done yeoman service in the original assault as bombers, strafers and rocket-firing hellions.

To make Aslito reasonably adequate meant filling in some 600 holes, ranging in size from small ruts to gaping bomb craters. That was accomplished in the first week. From adequate to safe meant tacking an additional strip of runway with shoulders on each side to the 3,900-foot Jap strip. This operation involved moving 10,000 cubic yards of dirt. The job was finished in four days.

Next came the building of a mile-long B-24 runway. Some 66,000 cubic yards of earth were excavated, 27,000 cubic yards were filled in, and 80,000 cubic yards of coral topping were transposed to finish the job.

Ingenuity plus hard work is the formula used by the aviation engineers. When they found that 24-hour shifts and their own excellent equipment weren't enough, they adapted to their use what the Japs had left behind, salvaging machine and hand tools, generators, pumps, lumber, rolling stock, wiring and pipes. Jap pumps drove salt water to wet down the runways. Jap generators provided lights for the tents. An old Jap concrete mixer was turned into a washing machine, running obligingly on captured Jap gas.

Aslito was an example of adaptation of known requirements to existing conditions with whatever compromises were necessary. Lt. Col. Harry A. Hall, 33-year old commanding officer of one of the battalions, summed it up as follows:

"If we know the number and general type of the planes to be accommodated, we know pretty well what sort of field to build. We know the runway should be headed into the prevailing wind and that approaches to the runway at either end should be as clear as possible. We know that we should have a reasonably level site—just how level the site will be dependent upon how much time we have to build the strip.

"If it's a rush job, we can't be cutting down hills and filling up ravines. We find the site that seems best suited to the requirements. If we head the runway directly into the prevailing wind, there may be a hill that the planes can't clear on a take-off. Or it may be a hill in the way of landings. So we swing the runway a little away from the prevailing wind. That's not a perfect lineup for a runway, but planes can come in and get off—and that's the important thing. If the requirements can be adapted to the conditions, we go in with surveyors. The bulldozers come right behind the transit. The surveyor looks through his transit, turns to the man on the 'dozer, and says, 'Plow ahead.' We build the field as we are planning and laying it out."

Thirty days after the engineers landed, Aslito was handling what was probably the greatest volume of Army, Navy and Marine air traffic in the Central Pacific. Hundreds of take-offs and landings every day: 7th Air Force Thunderbolts to bomb, strafe and vent their rockets on Tinian, Rota, Pagan and other Jap targets; 7th Air Force and Navy bombers to paste the then unconquered Guam and more distant installations; Marine cubs to spot artillery fire; 7th Air Force photo-reconnaissance planes streaking away after their pictures; transient bombers, cargo and transport planes.

Adaptation of existing airfields is not always feasible, and the aviation engineers often have to start from scratch. At Saipan, the intention was to use a Japanese strip on the west coast of the island for a fighter field. However, an inspection showed that the strip was not suitable for our operations, so a new site was selected on an elevated tableland overlooking Magacienne Bay.

The advance party of the aviation engineer battalion assigned to build the fighter strip began preliminary surveys to the rattle of machine guns. At night, they were able to read from the light of American and Japanese flares. The remainder of the battalion arrived a few days later with com-

plete equipment and the heavy work was started. They drove some 90 trucks and jeeps and 80 pieces of heavy equipment such as bulldozers, graders, shovels and rollers over seven miles of torn up, winding roads clogged with ammunition and supply caravans bound for the front and ambulances headed for the rear. Slow moving cats and 'dozers of the engineers would lumber forward for a few minutes, then pull off the road to let faster moving traffic go through.

Meanwhile work was under way in the level canefields covering the site. Bulldozers worked only a few feet behind the surveyors, clearing the cane, knocking down scattered Jap shacks and uprooting the lines of a small Jap railroad. The entire area was littered with dud shells, unexploded grenades and fuzed artillery ammunition.

Actual construction began on July 2. Fourteen days later a made-to-order fighter runway was ready. During that period about 50,000 cubic yards of earth and coral had been moved. Machinery had put in 7,800 operational hours, figuring 20 hours per machine per day, with only four hours lost through repair and maintenance.

But runways, however excellent, hardly make an airbase operational. There are dozens of "accessories" that the aviation engineers know only too well because they have to build them. On Saipan these included an emergency "ready av gas system" of large tanks with drum dumping stand and overhead dispenser. A "ready av gas system" is a series of gasoline storage tanks at the edge of a runway where gas is pumped into tank trucks which in turn service the planes. Other tasks included the reconstruction of a Jap deep well and the accompanying pumps, and directing the flow of water into a purification plant; the erection of a tank for servicing Jap aviation gasoline to American trucks, and the construction of a control tower and a bomb storage area.

While carrying on their airfield construction and rehabilitation work, the engineers set up their own living quarters in a tent area, built screened-in kitchens and latrines, erected showers, dug foxholes, set up repair shops and maintained all equipment. In addition, the engineers served regular guard duty and performed KP and other routine jobs. Any free hours squeezed out of their schedule were spent in such relaxing activities as building washing machines.

The story of AAF aviation engineers on Saipan is more or less the story behind all of our operational bases through the Pacific. It is one of the many stories behind the headlines heralding our aerial assault toward Tokyo. ☆

TO THE RESCUE

Better to Ditch

A B-17 was in sight of its home island when the gasoline gauge on the last tank flickered to empty. The pilot ordered the crew to bail out, and he and the copilot stayed with the plane and ditched fairly close to shore. It was a good ditching and they had plenty of time to inflate one of the dinghies. They paddled to shore without any difficulty since there were no coral reefs or other dangerous obstacles.

The rest of the men were not so fortunate. Two of them were picked up by a rescue boat after a diligent search. The others never were found.

The pilot of this B-17 acted with the best intentions. He thought a ditching would be dangerous and that the men would have a better chance of survival if they floated down to sea in their parachutes. This pilot simply was not up to date in his knowledge of emergency rescue. Before ditching procedure was refined to the smallest detail, before rescue equipment was designed and supplied to meet every emergency, a bail-out probably would have been preferable to a ditching, but today if a crew knows its ditching procedure and if the pilot knows how to ditch there should be little danger. Even if a plane floats only a minute, airmen have found that they have time to get outside and inflate their dinghies.

When an airman leaves his plane on the water he can take all of the emergency equipment with him. He has the assistance and advice of the other men to aid him. He will be afloat in a dinghy instead of a vest, and this will add to his safety, his comfort and his chances of rescue.

All this is true, of course, only for multiplace aircraft. A ditching is not advisable for a fighter pilot, although some successful ditchings have been made in the P-38. A fighter pilot has his rescue equipment with him—even his dinghy—when he bails out, and ditch or bail he is going to be alone when he hits the water.

When in Trouble—Sound Off

If rescue agencies know the location of a survivor, the task of picking him up is relatively simple unless he is in enemy territory or unless the weather is extremely unfavorable. Communications, therefore, may be the major factor in effecting a rescue.

The first communications task is to let someone know you are in trouble and give your position. This should be done as soon as you know something is wrong. If the trouble clears up you can let the ground station know. If it does not clear up, DF stations will be alerted to take fixes on your position and rescue agencies will be ready to start their search. Turn on your "emergency switch." Transmit an SOS on W/T or Mayday on R/T. Use your normally assigned air-ground frequency first but if you can not get through, switch to one of the emergency frequencies. It is important to send your position, your course and your plans while you are in the air. Your altitude and the superior equipment will afford more range than you can hope to get from a dinghy.

The second communications task will be to help the search party find you once you have ditched or landed. Set up and operate the Gibson Girl for five out of every fifteen minutes. When planes or surface craft are seen or heard, operate your Gibson Girl continuously.

In addition, use your visual signals. Pyrotechnics will attract either a boat or a plane. The sea marker can be seen by aircraft more easily than by boats, but if a dinghy has trailed a sea marker for two or three hours the boat might intercept and follow the trail. The signal mirror is very effective in sunlight. In fog or darkness the whistle should be blown.

If you have lost your signalling equipment, use the back of your watch to reflect the sun's rays. Splash the water. Wave your tarpaulin. You will be a very small visual target, and a plane might fly right over your head without seeing you unless you signal it by the best means you have.

New Survival Manual

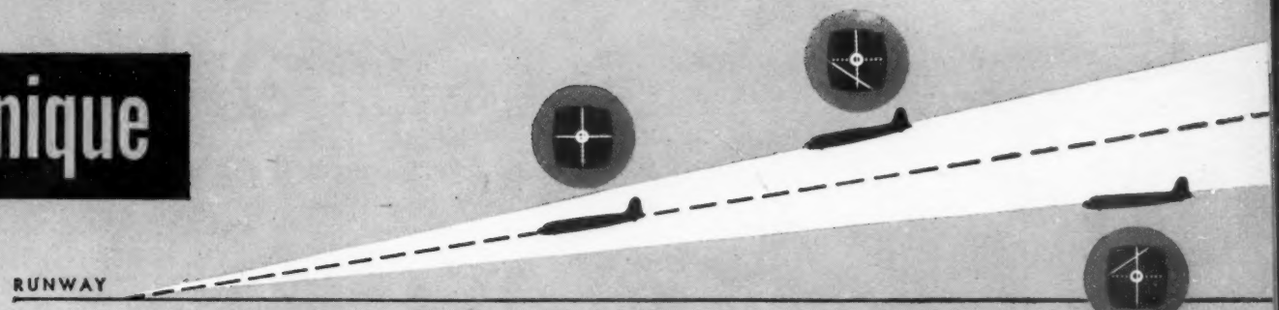
A revised edition of the AAF manual, "Survival," which came off the press in July, is now available for distribution.

The new volume was prepared exclusively for use at the scene of an emergency. When you settle down in your dinghy with "Survival" to find out what to do next, you won't be confronted with advice about what you should have done before you ditched your plane. All briefing and training instructions have been deleted. The new manual is arranged and indexed so that wherever you are or whatever your problem you can find the information you need immediately.

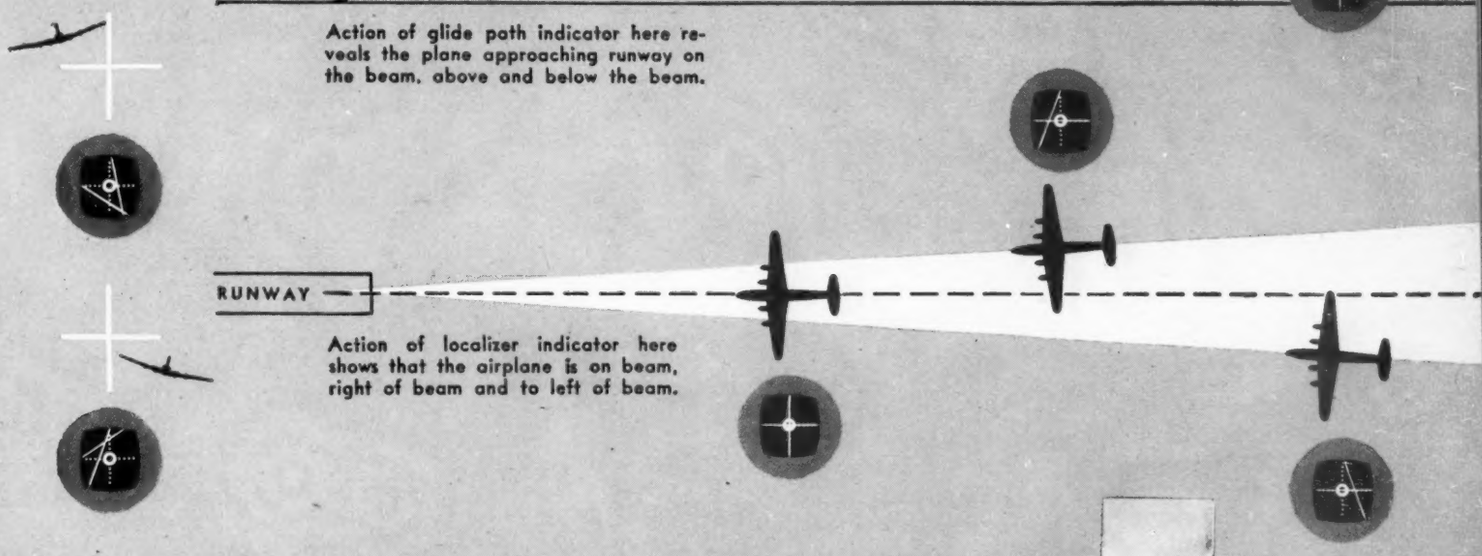
The new "Survival," like the old, is divided into two sections: survival on land—jungle, desert and arctic—and survival at sea. Sub-divisions of these sections, however, have been rearranged to prevent duplication and to give the most important information first. The first page of each section gives instructions for "immediate action," followed by "first aid."

"Survival" will be distributed by the Training Aids Division, One Park Avenue, New York. ☆

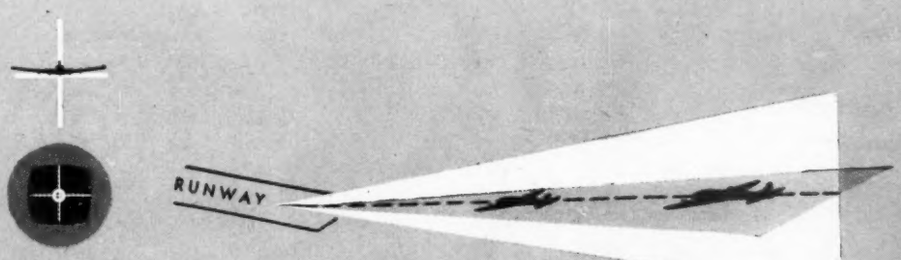
technique



Action of glide path indicator here reveals the plane approaching runway on the beam, above and below the beam.



Action of localizer indicator here shows that the airplane is on beam, right of beam and to left of beam.



Pilots approaching the runway are able to determine their positions from the horizontal and vertical lines on the dial. The position of plane and how indicated is shown in the three graphic drawings above.

Centered on the runway by a beam from the localizer transmitter and guided down through the overcast by a glide path indicator, a pilot is able to come in for a safe landing.

Shooting Landings by Radio

By Lt. Col. F. L. Moseley

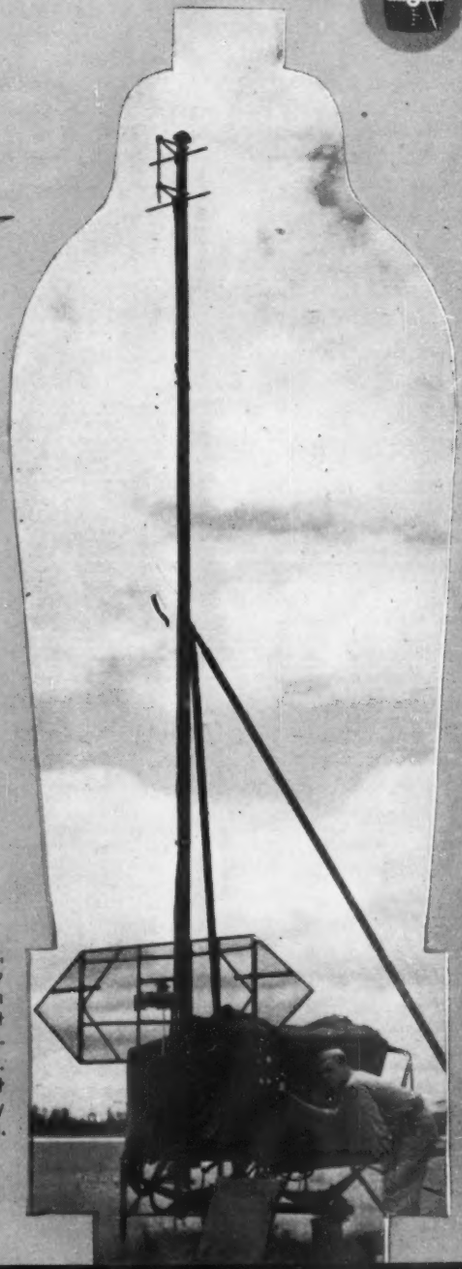
Aircraft Radio Laboratory, Wright Field

If a pilot has to make a landing on a field closed over by a low-hanging overcast, he wants to know three things: When he is lined up with the unseen runway, his distance from the airfield, and the rate of descent that will bring him out a few feet above the end of the runway. And these are the three things the AAF's new instrument approach system tells the pilot—by radio.

The new system picks the pilot up about 15 miles from the airfield at 3,000 feet and leads him down through overcast to a safe landing on the runway.

After many years of development, the present system was standardized following its successful demonstration at the Pittsburgh airport in the fall of 1942. At Bryan, Texas, one system has approximately 4,000 hours of successful operation to its credit.

(Continued on Next Page)



The localizer transmitter, used in the AAF's new instrument approach system, is placed about 1,000 feet from the upwind end of the runway. Mounted on a truck, it can be moved quickly when the wind changes.

technique . . CONTINUED

Portable radio equipment, which transmits the glide-path signals for the instrument landing system, is placed about 750 feet upwind from the runway's approach end and about 400 feet to one side.

Because the equipment that has made successful instrument landings possible is strictly a radio system, a description of the component parts and their operation necessarily must be semi-technical.

Fundamentally, the system includes a localizer to bring the plane in line with the runway, a glide path transmitter to guide the plane down at the proper rate of descent, and markers or check points over which the pilot gets a radio fix including distance from end of runway.

The localizer is similar to an ordinary radio range. It differs in two respects in that it indicates the course line to the pilot visually (on instrument panel) rather than aurally and it operates at ultra-high frequencies where it is out of the range of ordinary static.

The localizer projects two tone-modulated radio patterns which intersect as a line or plane in space, thereby providing the pilot with a center-line to the middle of the runway from as far away as 75 miles at 8,000 feet.

On the instrument panel is a cross pointer meter that indicates the position of the airplane in relation to the localizer line, whether it is to the left or to the right.

One side of the instrument is yellow, the other blue. At all times, irrespective of heading, the localizer indicates the color of the sector in which the airplane is flying. However, the localizer needle points toward the course line when the aircraft is approaching the runway from the proper direction. When the aircraft is flying in the opposite direction, the needle points away from the course line.

Since the localizer is a special form of radio beam or range, it must be flown by "bracketing." With the aid of the directional gyro, heading corrections of only a few degrees need be made because of the sharpness of the localizer course. So sensitive is the indicator needle that a deviation of 3° from the course line will be indicated by a complete swing of the needle to its scale maximum. This sensitivity is essential to assure proper alignment of the airplane with the center of the runway.

Three markers, 75-megacycle transmitters, are placed along the localizer course, one at 4½ miles from the field (flashing two dashes per second), one at one mile from the field (flashing six dashes per second) and the boundary marker approximately 200 feet from the end of the runway (projecting a constant light).

The third component is the glide path, a precise radio beam that descends at a low angle to the runway. As seen by the pilot, it starts from the landing point on the runway at an angle of 2½° and projects to a distance of 15 miles or more. A cross-pointer instrument on the panel indicates whether the plane is above or below the glide path; when the two needles intersect, the plane is on the proper flight path.

The 2½° glide path angle represents a rate of descent of approximately 400 feet per minute at a ground speed of 100 mph. The glide path also may be used for rough indications of distance from the runway since each 200 feet of altitude approximates one mile in distance from the field. If the pilot's altimeter reads 1,000 feet when he is descending on the glide path, he is approximately five miles from the end of the runway.

Ground equipment includes the localizer transmitter which is installed in a truck about 1,000 feet from the upwind end of the runway. Glide path transmitter is mounted in a small trailer approximately 400 feet to the side and 750 feet from the approach end of the runway. Marker transmitters are transported in jeeps to their locations.

Equipment in the airplane receives the impulses from these transmitters. Localizer and glide path receivers pick up the signals on a combination antenna or on two separate antennae, depending upon the type of airplane. A small control box enables the pilot to select any one of six receiving channels for the localizer and any of three channels for the glide path.

To fly in on this system, the pilot approaches the field on the radio range, by his automatic radio compass or by other radio navigation methods. When within 20 miles of the field, he switches on the proper channel for making a landing at this particular field. Then he brackets the localizer and flies along it until the glide path is intersected. At an altitude of 2,500 feet, he intersects the glide path about 13 miles from the field. At this point he starts his descent along the glide path, lowering wheels and flaps, reducing power and increasing rpm as the plane nears the field. On breaking out of the overcast, he is able to continue his descent onto the runway. From flight experience, it has been proved that a skilled pilot can make a complete blind landing on the runway, but initially the system is being used simply as an aid to low approach.

Further refinements include use of the C-1 automatic pilot. The localizer and glide path signals would actuate a special receiver that, in turn, would transmit adjustments to the auto-pilot which would fly the plane down to the runway. The pilot, of course, would have to make power adjustments, lower the gear and flaps.

Extensive tests of the system have been made by Wright Field, the AAF Board and AAFTAC at Orlando. Service tests are being conducted by Air Transport Command and the Instrument Instructors' School at Bryan, Texas. One of the production models was taken to England by the author for joint tests with the RAF and the 7th Air Force.

Such problems as traffic control over a closed-in field are being tackled by airdromes with the equipment. In England, we successfully brought in as many as six planes in succession without difficulty and, with establishment of suitable traffic control procedures, this number can be increased greatly.

Historically, the AAF instrument approach system is the outgrowth of many years of work by numerous agencies. Lt. Gen. James H. Doolittle was a pioneer in the field. Sharing in the development were the Bureau of Standards, the Army and Navy, commercial airlines and others. The present AAF system combines and refines many ideas, old and new, into a complete practical system that promises to eliminate most of the weather hazard of landing planes through overcast.

High Intensity Controlled Lighting for Airdromes

Concentrated incandescent lights with enough candlepower to penetrate through several hundred feet of ground fog, haze, snow and other weather hazards that hamper final instrument approaches and radio let-downs are being used by the AAF in its newest runway lighting system. These lights enable incoming pilots to see the outline of the field approach and the runway at the critical time when proximity of the ground is likely to disturb the accuracy of instrument readings.

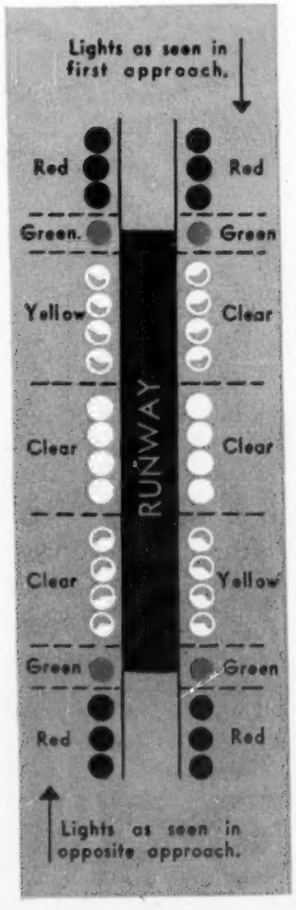
This equipment, developed by the lighting unit of Wright Field's Equipment Laboratory and tested in cooperation with the Navy Department Bureau of Aeronautics, is in use at more than a score of Army-Navy installations in the Aleutians, Newfoundland and the European Theater of Operations. It also has been approved for use at permanent stations on runways having instrument approach facilities.

The individual lights are dome-shaped units with two lenses. One concentrates the light in a vertical beam, the other directs a high-intensity beam approximately parallel to the runway in the angles of approach. A reflector strengthens the main beam by redirecting rays that otherwise would be lost. Reflections from fog or water particles that might prevent the pilot from seeing other lights farther along the rows are greatly lessened by restricting stray light to a minimum.

Runway, approach and caution light markers have color screens between the inner and outer lenses that retain color clarity when viewed through the halo of other colored lights.

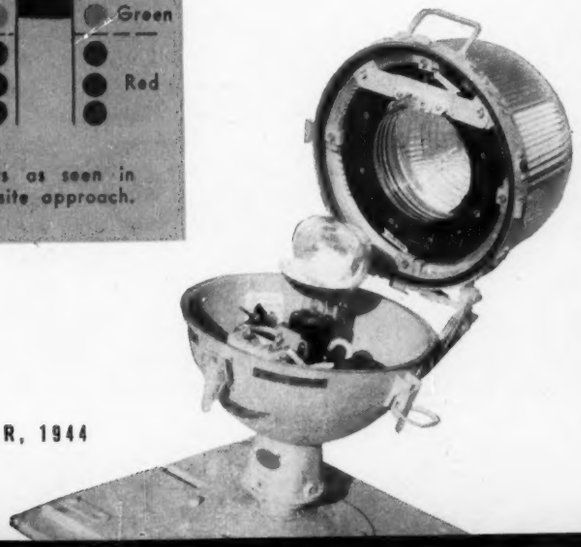
Five brightness settings permit intensification of the light when visibility decreases,

(Continued on Next Page)



Installation plan (left) for new lights which mark runway and its approaches when visibility is low.

Inner and outer lenses of lamp unit (below) direct light beams vertically and at approach angle.



technique TECH TALK

A tow release indicator is being tested for glider tow-planes. It tells the pilot if tow release mechanism is properly locked, indicates when the tow rope has been dropped. . . . A light steel cable with a special safety link hook for attachment may be used to pull heavy gliders. . . . All-wood, DH-Mosquitoes, built in Canada, are being designated F-8 photo ships for the AAF. Camera equipment consists of two K-17 or K-22 aerial cameras with 12-inch special lens . . . K-10 aerial cameras have been modified for night photography to include an electric winding mechanism with a two-second cycle, a 12-inch shutter taken from a K-17 camera, a seven-and-one-half-inch, f/2.5 lens and a K-19B camera photo-electric system for shutter operation. Cameras are to be used for night photography.

To speed up feed and ejection operations on the 20 mm cannon, a link loader has been adapted to T-14 feed mechanisms. The loader has separate guides for 11 links and 10 cartridges, a loading bar and handle. . . . Work is in progress to reduce vibration in gun camera mounts of fighters eliminating blurred photos. . . . Redesigned D-6, D-7 and D-8 bomb shackles provide for caution release, even when bomb tail fuzes are attached only by a single wire, a condition which previously resulted in a hazardous operation to release the bomb completely from the airplane.

In P-51D airplanes the pyrotechnic flare container has been changed to eliminate the possibility of detonation by the pilot's foot when entering the cockpit. . . . Versatility of wing and fuselage tanks was initiated by installing small seal-tight doors, making it possible to carry baggage and supplies in lieu of gasoline. . . . A tougher, harder liquid coating is being applied to external auxiliary tanks made of plastic materials to help make them puncture proof against flying pebbles or stones kicked up by the aircraft wheels during taxiing.

Being built for test purposes are a gigantic static and dynamic test laboratory capable of testing aircraft in the 200,000-pound category, new high-altitude pressure chambers that simulate cold temperatures as well as low pressures and a pressurized, cold-temperature 10-foot wind-tunnel, the first of its kind in the world. . . . A new flight analyzer for flight tests makes a permanent record of altitude, air speed and vertical acceleration; may replace the old barographs as pilot checkers. An electric spark passing between a recording stylus and a metallic backed paper chart, burns a black line to indicate an aircraft's various maneuvers during a test. . . . Aviation goggles are being improved for wear with A-14 oxygen masks and the three service gas masks. . . . Antenna masts made of plastic materials are under study and may replace some of the light metal masts now in use.

A new, tougher, braided fishing line may go into emergency kits carried by men forced down at sea. . . . Sample blackout shades made of satin have been installed on some aircraft. . . . Back type parachutes may get a new form-fitting flexible back stiffener to defeat complaints that present types lose their stiffness. . . . An ice grip casing has been tested and approved for 27" airplane tires permitting improved take-off and landing characteristics on icy surfaces. Of metal, grips are glued to rubber casing by a new method of adhesion.

New electrically retractable landing lights with improved slidings contact and cover assembly are being fitted for bombers. . . . A direct reading gasoline gauge of the metal float type may be installed in B-24 bomb bay tanks to replace intricate "second-hand" indicators. . . . Dropped as no longer needed, have been experiments with various mock-ups used for ditching trainers.

thereby protecting the pilot from excessive glare when visibility is good. Beam angles (toe-in and elevation) and light intensity are controllable. Full intensity is used when visibility is restricted during the day and when visibility conditions at night are extremely poor. Low intensity is used for normal night operations under contact weather conditions. A small fan prevents condensation of moisture over the lens.

A complete installation consists of two rows of lights marking the runway approaches and edges. Individual lights in each row are spaced about 200 feet apart. An approach path of approximately 2,400 feet is lighted at each end.

Approach zones are lighted red, ends of the runway green, first portion of the runway white and last 1,500 of runway yellow. This standardized color arrangement has been adopted by the Army, Navy and Civil Aeronautics Administration for use at all installations under their jurisdiction.

As a pilot approaches a field with this lighting system, he lets down on one leg of a radio range station or on the radio beam of an instrument landing system. When at approximately 200 feet, he holds this minimum altitude until he locates the runway visually before completing the landing. When weather is unusually bad, he may make several passes before lining up his plane for a final let-down.

Under development since 1937, the high-intensity controlled lighting system was first used in 1939 at Indianapolis. Three years later, improved units were installed at Geiger Field for use with instrument approach landing systems.

The lamp assembly of the system can be used only on a 6.6 ampere series circuit and it must be connected to the secondary circuit of a transformer or other device for producing constant current. In emergency installations, power is supplied for each circuit from a 9.3 KVA generator, AAF Type B-6. A brightness control regulator must be used with the B-6 power plant to supply constant current to the series circuit, and the total load must not exceed six kilowatts.

Supersonic Wind Tunnel

A narrow-throat wind tunnel capable of producing wind velocities more than twice the speed of sound is being constructed at Wright Field to test airfoil sections and small aircraft models at supersonic speeds. It will be the largest supersonic tunnel for aeronautical research in the world.

Expected to attain a maximum airspeed that would correspond to about 2,000 mph at sea level conditions, the tunnel is only one-fourth the length of the 20-foot, 450-mile-an-hour tunnel, now the AAF's largest, but it is over four times as fast. Effects of compressibility peculiar to our newest models of high-speed aircraft designs will be studied in the tunnel's small test chamber.

Built of all steel framework, the tunnel is rectangular in shape and lies with its axis in a vertical plane. In cross-section it tapers in diameter from eight feet to less than a foot at the flexible throat aperture. This section in which tests will be conducted is rectangular with a cross-sectional area of four square feet. Wind tunnel airspeeds are increased by reducing the size of the aperture in the nozzle-like throat which constricts the air, then allows it to expand and flow smoothly through the tunnel with jet-like force.

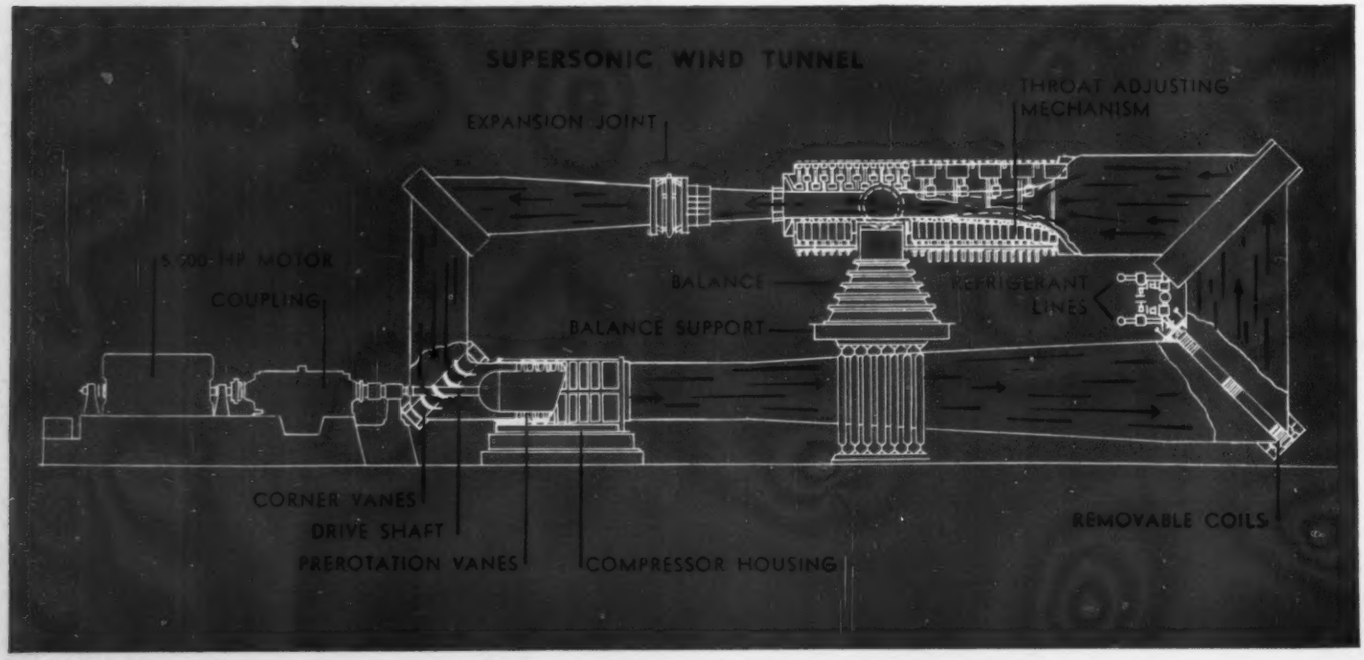
The compressor is a unit with eight three-foot diameter hubs. Forty small cambered blades are set in each hub in spoke-like pattern to draw the air through the tunnel. Each blade is 4½ inches wide and 7½ inches long. A 5,000-horsepower electric motor turns the compressor at a top speed of 3,600 rpm to create an airflow with a 2.5 mach number, or 1,825 mph at the temperature prevailing in the test section.

Internal cooling coils use calcium chloride brine to counteract the heat from compressor blade friction and air compression and maintain the tunnel at sub-zero temperatures for specific tests. Drying devices prevent icing of air particles.

The test section of the tunnel is fitted with a galaxy of scales, gauges and other measuring devices which record lift, drag, side force, rolling, yawing and pitching moments of any airfoil under test. The tunnel also is to be equipped with two accurately ground concave mirrors, 36 inches in diameter, for making Schlieren process photographs which snap pictures of the "invisible" shock waves that form at high speeds.

Oxygen Want Indicator

A new device for warning when the oxygen content of a flyer's blood drops to a critical level at high altitude has been perfected in coordination with the Materiel Command at Wright Field. Known as the oximeter-colorimeter, the in-



Attached to a flyer's ear, the Oximeter-Colorimeter (right) detects a critical lack of oxygen content in blood and activates warning indicator (above) on the plane's instrument panel.

strument is attached to the airman's ear as a built-in part of the flying helmet.

Employing a photo-electric cell, the appliance is designed so that a red light or a warning horn is activated when a dangerous lack of oxygen exists. The device is connected to an indicator placed in convenient view of the airman.

The color of blood changes from bright red to dark purple as oxygen content decreases. This change can readily be detected in the thin tissue of the ear by the colorimeter. Four small lamps on one side of the ear shine through the ear tissue to generate a photo-electric cell plate on the opposite side of the ear.

As oxygen content decreases, the blood darkens, permitting less light to pass through the ear. Activation of the photo-electric cell is thereby decreased until the deficiency is indicated on the warning indicator in adequate time for an airman to correctly adjust his oxygen supply.

Operation and adjustment of the device is simple. Before take-off, the ear cup unit is placed in position. Current to the lamps is turned on by a knob on the front of the indicator.

After about ten minutes, either before or after take-off, when blood-flow through the ear has been stimulated by the warmth of the attached lamps, the indicator is ready for adjustment.

With the blood fully saturated with oxygen, the indicator knob is turned until a blue or green light will show until oxygen saturation of the subject's blood drops under 85 percent. Below this point, a red light appears to warn the airman that protective measures must be taken. Imminent collapse occurs when oxygen saturation of blood drops to 55 to 65 percent.

The oximeter-colorimeter is particularly useful during high altitude flight tests. It can be used also to indicate whether wounded air evacuees are receiving an adequate oxygen supply.

The ear unit has proved practicable for anticipating blackouts by the decreased flow of blood through the ear under the Gs resulting from violent aerial maneuvers of centrifuge tests.

An automatic valve, which will increase the flow of oxygen into the mask when the indicator detects an oxygen deficiency, is being perfected to supplement the warning system. ☆

technique
WHAT'S NEW . . .

Pressure Breathing Equipment—To increase efficiency and safety of pilots and crew members at altitudes of 40,000 feet, a new pressure oxygen mask, A-13, and a new Pressure-Demand Oxygen Regulator, Type A-14, have been developed by the Aero-Medical Laboratory at Wright Field. This oxygen system assures proper mixtures of air and oxygen at all altitudes up to 35,000 feet and pressurizes the oxygen at higher altitudes to force it into the lungs of airmen who otherwise could not inhale enough to sustain life. Usable with any standard demand system, the mask is specially designed to seal more tightly to the face as positive pressure in the face mask-piece is increased. Mask, goggles and helmet must be fitted as a unit prior to each flight to insure a 100 per cent pressure seal. A cheek flap protects the wearer against extreme cold and flash burns. The A-14 regulator is similar to the A-12 except for an added variable spring weighted diaphragm for pressure breathing. A dial control is manually operated at altitudes of 40,000 feet to increase oxygen pressure as outside altitude is increased. The pressure breathing equipment can be used when an airplane cabin is not pressurized.

Skids for Gliders—Glider crash skids that protect the nose and underside of the fuselage have been developed to shorten a glider's landing run on soft or uneven ground. Made of six-ply mahogany, the three skids are attached to a welded steel tubing sub-frame bolted to the glider nose superstructure. The skids keep the wings in near level flight attitude during a landing. When the nose hits, they force the tail down and put more lift into the wings. A cushion landing results, with glider planing to a stop like a speed boat over rough water. The installations are a product of Pope Field Army Air Base.

Double-Header Jeeps—The ubiquitous jeep, with a tandem hitch, now can be used in pairs or sets of three to tow airplanes along taxiways. The hitch, which is being distributed in kits by ASC to all squadrons (two each except heavy and troop carrier which are allotted three each) on a requisition basis, enables two jeeps to do many of the prime moving jobs for which the 2½-ton truck is designed.

Tests indicate the jeeps, in addition to other duties, now can tow planes on concrete or hard-surface taxiways. When the ground is uneven or wet, an extra jeep usually is needed in the procession. The hitch replaces the bumper and becomes a permanent part of the jeep. When not in use, it can be folded back and fastened to a bracket on the radiator grill.

Semi-Quick Release Harness—New AAF parachutes incorporate a semi-quick release harness using the Irving quick-release box and an entirely new harness strap arrangement. The harness, weighing six pounds, is applicable to A-4, B-9 and S-5 parachutes and is designed for water landings. Suspension straps which form a sling for the wearer are connected to the release box from shoulder points. The wearer after pressing the release is free from the harness but he remains sitting in the sling. On landing, he simply slips out of the sling and devotes his attention to his emergency life raft or Mae West.

Adjustable Safety Belts—Lap safety belts, incorporating a metal knurled roller which allows slippage in one direction but not in the reverse direction, permit quick, easy adjustments by means of pull tabs. The fastened belt will withstand loads up to 3,500 pounds. Developed by Wright Field's Personal Equipment Laboratory and designated the Type-B-14, it is adaptable to both bucket and bench seats.

NOTES ON Women's Activities

Needle-and-Thread Assembly Line

Some time ago, a group of officers' wives at Hamilton Field, Calif., became aware that their husbands were not the only ones on the base whose shirts, socks and trousers required frequent mending—so they set out to do something about it.

The volunteers secured a building, installed sewing machines, long tables, needles and thread, and insured the daily presence of sewing experts from their own ranks. From their Women's Club funds, they purchased the necessary equipment and began sewing and mending for enlisted personnel as well as transient officers.

With assembly-line efficiency, the mending rooms now operate six days a week from 0930 to 1700. Duplicate tickets are made for each article of clothing at the "issue" table, one remaining with the garment, the other going to the "customer." From here the garment goes to a pinning table, then to a large sewing table for machine or hand-sewing, and, finally, back to the original issue table where it is hung on a rack for quick identification and ready access.

There is no charge for this bring-it-in-and-get-it-back-today service, and a booming business is evidenced by tables piled high with shirts, slacks, field jackets, overcoats, fatigues, socks and caps. Twelve hundred articles a month is about the average volume. In their spare time, the women volunteers also put the finishing touches on baseball uniforms for post teams and make curtains for dayrooms.

W. V. S. Pins

The Officers' Wives Club of the 4th Air Force has devised a card system to record the number of hours its members devote each week to volunteer work in post projects, Army Air Forces Aid Society, personal affairs division, Red Cross and the like. Members who qualify with at least 100 hours are entitled to wear an official Women's Volunteer Services pin, on which is engraved the 4th Air Force insignia, with bars below indicating the number of hours served.

Pens by the Bushel

Hundreds of old and discarded fountain pens collected by AAF women volunteers in the San Angelo, Texas, Spotters' Club have been repaired and sent overseas in recent months. The San Angelo group launched a country-wide campaign to round up the pens, and at the end of the drive they had collected, with the help of the country's school children, 965 whole pens and 1,131 "half" pens.

Inspiration for the pen collection came from Emerson McCord, a Houston invalid who repairs pens as a hobby. He started the project on a small scale by asking friends for their discarded fountain pens. Houston stores and civic organizations began collection campaigns and soon other drives were begun in New Orleans, Dallas and Birmingham. An Ohio rubber company contributes the rubber sacks used by McCord in his repair work. McCord's proposal that the reconditioned pens be distributed overseas by Army chaplains was quickly approved by the Army.

Twenty CFTC Clubs in NAAFW

Leading in the number of member women's clubs affiliated with the National Association of Air Forces Women is the Central Flying Training Command, with 20 groups listed at NAAFW headquarters in Washington. The 3rd Air Force, with 16 clubs in the national organization, is runner-up.

CFTC member clubs are signed up from these fields: South Plains, Lubbock, Texas; AAF Base Unit, Sikeston, Mo.; Selman Field, La.; San Angelo Army Air Base, Texas; Pampa Army Air Field, Texas; Majors Field, Texas; Independence Army Air Field, Kan.; Hondo Army Air Field, Texas; Grider Field, Ark.; Goodfellow Field, Texas; Garden City Army Air Field, Kan.; Foster Field, Texas; Fort Worth Army Air Field, Texas; Dodge City Army Air Field, Kan.; Coffeyville Army Air Field, Kan.; Bryan Army Air Field, Texas; Bruce Field, Texas; Blackland Army Air Field, Texas; Avenger Field, Texas, and Altus Army Air Field, Okla. ☆

Rendezvous

(Continued from Page 1)

is a tough mission. My 100th mission didn't seem to bother me any more—nor was it any easier—than the first, the fifth or the twenty-fifth. I look on each one as an individual job having no bearing on longevity. There may be such a thing as percentages in baseball, but not in combat flying. When those wheels hit the runway and you feel the skipper giving her the brakes, you can just file another one in the books, because that indefinable thing called luck doesn't run out like hydraulic fluid from a leaking line. . . .

T/Sgt. Paul E. Mathis, 9th Bomber Command, England

We doubt that many combat flyers will agree with the Sergeant. How about it? Ed.

Why Warrant Officers?

Dear Editor:

. . . I would like very much to have you answer some questions pertaining to Warrant Officers. I have been a Warrant Officer (J.G.) for 17 months and many times I have had the question asked me, "Why does the Army have Warrant Officers?" This I cannot truthfully answer. I have asked several officers of field grade, and they cannot answer this question either. . . .

W/O Donald W. Mendenhall, APO 520, New York

See question and answer column on page 52. Ed.

Men 40 — Horses 8

Dear Editor:

. . . With regard to your recent editorial entitled "No More Box Cars," let me assure you that all the box car trouble was not ended by the armistice of 1918. To a good many of the flying personnel here in the Mediterranean Theater the 40 & 8 ride from Casablanca to Bizerte is a never-to-be-forgotten experience. Not that it was a rougher trip than the ones our Dads took, but it certainly was a lot longer. Since the wheel castings were dated 1886, many of us believe the *quarante hommes et huit chevaux* is here to stay.

1st Lt. T. V. Murphy, Corsica

B-29

Dear Editor:

. . . In the July edition of AIR FORCE there is an article by Col. Donald L. Putt entitled THE B-29 SUPERFORTRESS. In the first paragraph, page 7, the Colonel states that "it was not until September, 1943, that the first ship again took to the air."

This statement is incorrect as I was stationed at the Boeing factory, 6600 Ellis Avenue, Seattle, Washington, during May-June, 1943, and while there saw test hops made by the B-29. . . .

Cpl. A. W. Punt, Chanute Field, Ill.

The second B-29 to be flight tested crashed. The first did not take to the air again until September, 1943. In the meantime, other planes had been built and were flight tested during this period. Ed.

TRAINING AIDS

Automatic Pilot Trainer—A new trainer has been designed to aid in teaching pilots and bombardiers the functions and operation of the automatic pilot and to provide maintenance mechanics with practice in servicing the robot steering device and other flight control equipment.

Designated Automatic Pilot Trainer, Type H-2, it consists of an instrument trainer fuselage, capable of simulating climb, dive and bank movements, and a Type C-1 automatic pilot with mechanisms, controls, linkages and instruments necessary for its operation.

Functioning in the trainer with the same degree of precision and sensitivity it attains in a plane, the automatic pilot "flies" the trainer in a straight course or maneuvers it in response to controls.

On the trainer's instrument board, in addition to the automatic pilot control panel, are an artificial horizon, a turn and bank indicator, a volt-ammeter, an altimeter and a pilot director indicator.

A space approximately 12′ long, 12′ wide and 9′ high is needed for installation of the automatic pilot trainer. The power requirement is 110 volts, 60 cycles and 30 amps.

Maintenance procedures for standard instrument trainers and for automatic pilots in aircraft apply also to the Type H-2 trainer.

'Handbook for Recovery'—Proving of great value to the AAF convalescent training program is the new AF Manual No. 23, "Handbook for Recovery," which was produced by TAD for the Office of the Air Surgeon.

The book deals with physio-therapy and corrective exercises for casualties who are on the mend and who eventually will return to duty. It is written in a light vein and illustrated with many cartoons depicting the humorous side of a patient's routine.

Distributed to convalescents in AAF hospitals, the manual offers a simplified course in anatomy and outlines methods by which a patient may strengthen and regain use of a disabled part of his body.

Gun Camera Manual—Data, previously obtained only by searching through scores of TOs and other AAF publications, has been consolidated and augmented in AF Manual No. 25, "Gun Camera Manual for Flexible Gunnery Training."

The book provides standardized procedures for every operation from initial installation of the gun camera to assessment of the gunner's accuracy, and it should prove valuable to gunnery instructors and officers, operations and photo officers, power turret specialists and armorers.

Prepared by the Central School for Flexible Gunnery, the manual was published and is being distributed in the usual manner by TAD.

Gunnery Teaching Technique—To make flexible gunnery classes more interesting and to aid in the effective presentation of subject matter, AF Manual No. 16, "Teaching Methods for Flexible Gunnery Instructors," has been published by the Training Aids Division.

The 32-page, two-color booklet was prepared with the assistance of Ohio State University's educational research department following a survey by the Flexible Gunnery Instructors School, Laredo, Texas.

Covering lectures, demonstrations, discussions, tests, individual conferences, classroom aids and other phases of pedagogy, the manual also provides a coordinated program for the use of training publications, films and other devices.

The booklet is now being distributed to flexible gunnery schools and instructors. In general content, it may prove valuable to teachers of other Army subjects, and a limited number of copies are available to them and other persons concerned upon application through channels.

'Fighter Gunnery' — Basic principles of fighter gunnery are explained in a new manual, prepared by the Training Command and the Fixed Gunnery Instructors School.

Titled "Fighter Gunnery," the book includes data on optical sight, limits of effective range, harmonization, range estimation, deflection allowance, curves of pursuit, synthetic training devices, gun camera, firing practice and other related subjects.

The manual is being distributed by TAD.

Gunnery Posters—Firing accuracy, gained by fighter pilots only through a complete knowledge of the physical principles involved in fixed gunnery, is the theme of a new instructional poster series distributed by TAD.

Consisting of 21 posters assembled in the standard TAD binder, the series is labeled "Fighter Pilot Gunnery." Each poster is 30″ x 40″ in size and is lithographed in three colors. For the convenience of instructors, explanatory matter for each poster appears on the back of the preceding one.

Training Films—Emergency landing techniques, camouflage, fuel tank fires and aircraft recognition are subjects covered in five recently released training films.

Crash Landings in Unfavorable Terrain (TF 1-3331) demonstrates, by means of model planes and sand tables, the basic procedure for setting down bombers and fighters on unsuitable ground. The film also tells the story of a B-25 crew which survived a crash landing only because each member was well drilled in his emergency duties. Running time: 35 minutes.

Flying the Hurdle Stage (TF 1-3344) describes the proper method for making a short field landing over obstacles. Forced by a low fuel supply to attempt such a landing, a P-38 pilot is "talked down" by an officer skilled in hurdle approaches. Later, the pair discuss the reasons for each step taken. Running time: 15 minutes.

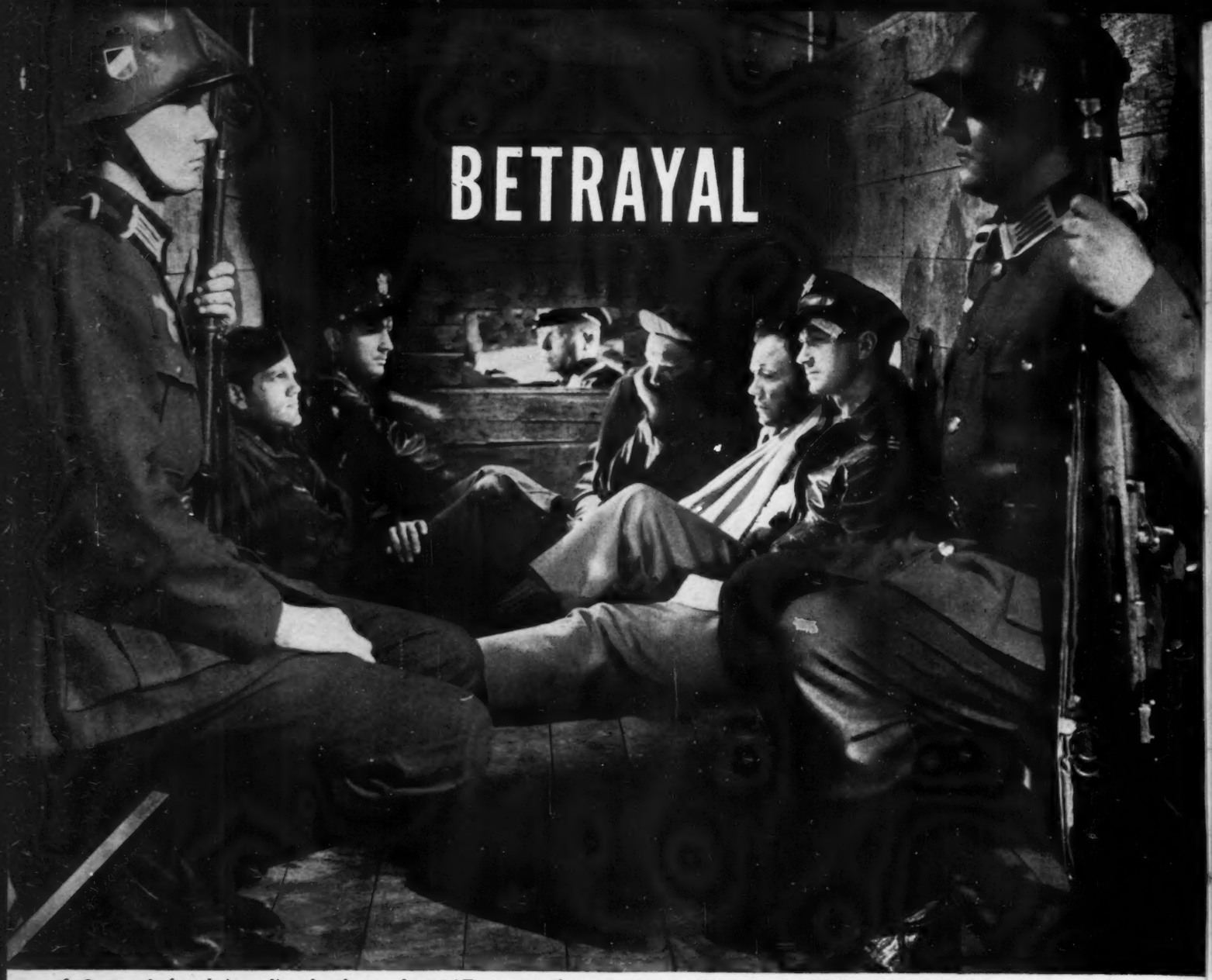
Camouflage Cartoon (TF 1-3351) is a non-technical film intended to impress personnel with the importance of visual deception. It emphasizes the necessity of thinking of camouflage in terms of the airview. Running time: 30 minutes. ☆

WHERE TO GO

Information on the availability of training films and film strips, aircraft recognition materials, training devices and training publications may be obtained from the Chief, Training Aids Division, Army Air Forces, 1 Park Avenue, New York 16, N. Y., upon request through channels. AAF Regulation No. 50-19 explains fully the functions of the Training Aids Division.

CARTOON BY F. WILKINSON

BETRAYAL



1 **Captured** after their medium bomber crashes, AAF crew members are transported in a lorry to Dulag Luft, a Nazi transient prison camp.

AMERICAN flyers, who would withstand torture and threats of death without revealing military secrets to the enemy, fall for psychological tricks at a German prison camp in the new training film, "Resisting Enemy Interrogation" (1-3336). Intended to warn AAF men to be wary of the Nazi artifice of friendliness, the picture repeatedly hits home the theme: "Give your name, rank and serial number and nothing more." The film opens with the crash of an AAF bomber in enemy territory and the capture of the crew by Germans. Taken to Dulag Luft, a transient prison camp established for the purpose of obtaining information from Allied captives, the Americans are puzzled when there is no obvious attempt to interrogate them. But the Nazi prison staff, already armed with a wealth of knowledge gleaned from various sources, needs only bits of data to complete its intelligence files on certain projected Allied operations. Deceived by the prison officers' pretended spirit of camaraderie and by a smoothly-working stool pigeon system, the Americans unknowingly disclose information which permits the enemy to thwart an AAF attack on Munich. The film, produced by the 18th AAF Base Unit (Motion Picture Unit), Culver City, Calif., is distributed by AAFTAD, 1 Park Ave., New York City.

2 **Ready to receive the prisoners** are Nazi intelligence officers who, by psychological methods, hope to dupe the Americans into revealing bits of information which can be pieced together and used to advantage against the AAF.

3 **Surprised by the friendliness** of their captors, the flyers are lulled into a false sense of security. When a pretty nurse treats him kindly, the wounded gunner tells her his base in Italy is planning a big mission for the near future.

4 **Posing as an Allied sympathizer,** one of the Germans invites the AAF copilot to drink with him. Two other Nazis join them and, in the conviviality that follows, the American reveals more about the projected mission.

5 **Deceived by the AAF uniform** worn by his bunkmate, who is a Nazi in disguise, the radio operator explains that only a few hours earlier his flight commander had been relieved from assignment to the next day's big mission.

6 **Given a good meal** in a Nazi officer's quarters, the tail-gunner drops word that his group has stocked up on incendiaries. Unwittingly, he has tipped-off the enemy that the slated target is of a highly-combustible nature.

7 **The jig-saw of information** scraps is completed when the AAF pilot, dining with Luftwaffe men, intimates a cold might keep a flyer from making a high-altitude mission. The Nazis tie that hint with the radioman's statement.

8 **Determining that Munich** is the only combustible target that must be reached by high-altitude flying from Italy over the Alps, the Nazis summon full fighter strength. Intercepted, the attacking bombers suffer heavy losses.

OCTOBER IN THE AAF

. . . BEFORE DECEMBER 7, 1941

1909, OCT. 26: First Army man to solo the Army's first plane is Lt. F. E. Humphreys after three hours' pilot instruction by Wilbur Wright.

1911, OCT. 10: Riley E. Scott bombsight and dropping device tested.

1911, OCT. 14: Air strength: 6 officers, 5 airplanes, 3 captive balloons.

1912, OCT 9: First competition for Mackay Trophy is won by Lt. H. H. Arnold.

1914, OCT. 8: Official American one-man altitude record of 16,798 feet is set by Capt. H. LeR. Muller.

1916, OCT 27: For fiscal year 1918. Chief Signal Officer asks for enlisted strength of 3,320 for 10 aero squadrons, 6 observation balloon companies, a proving ground and necessary schools.

1917, OCT. 21: 12-cylinder Liberty engine first flown.

1918, OCT 9: 32 tons of bombs dropped during Meuse-Argonne offensive in record concentration of air forces to date. More than 250 bombers and 100 pursuit planes participate.

1918, OCT. 12: Oxygen tanks ordered carried on all American flights over enemy lines. American Air Service engages in its first night fighting.

1919, OCT. 4: Official world 2-man altitude record of 31,821 feet is established by Maj. "Shorty" Schroeder and Lt. G. E. Elfrey.

1922, OCT. 6: Unofficial world duration record is established by Lts. Macready and Kelly. Established time: 35:18:30.

1922, OCT 13: Liberty Engine Trophy Race is won by Lt. T. J. Koenig. Speed: 128.8 mph over 257.7-mile course.

1922, OCT 14: Pulitzer Trophy Race is won by Lt. R. L. Maughan. Speed: 205.8 mph, 250 km course.

1922, OCT. 18: World's speed record of 222.96 mph for 1 km is set by Brig. Gen. Wm. E. Mitchell.

1923, OCT 3-6: William Mitchell Trophy Race won by Capt. B. E. Skeel. Speed: 146.44 mph.

1924, OCT. 2-4: John L. Mitchell Trophy Race won by Lt. C. Bettis. Speed: 175.41 mph, 200 km course.

1925, OCT. 8-10: New world speed records of 249.342 mph for 100 km, and 248.975 mph for 200 km set.

1927, OCT. 12: Wright Field formally dedicated.

1928, OCT. 19: Six-man machine gun team parachutes from 6-airplane formation, sets up in 3 minutes.

1938, OCT. 26: 350 mph average speed achieved by new Army pursuit plane. Lt. B. S. Kelsey, pilot.

1940, OCT. 25: Maj. Gen. H. H. Arnold designated Acting Deputy Chief of Staff for Air.

1941, OCT. 23: Increase in AAF expansion program from 54 to 84 combat groups is announced.

1941, OCT. 30: B-24 carrying members of Harriman Mission circles globe. 24,700 miles in elapsed time of 17 days.

The Library

AIR FORCE each month will present in this section new titles on aviation subjects which are available to AAF personnel through the AAF Field Technical Library Service, which provides for technical libraries at all major installations. These book lists, compiled by AAF Headquarters Library, supplement the Selected Bibliography of Aviation appearing in The Official Guide to the Army Air Forces.

Aircraft Yearbook. N. Y., Aeronautical Chamber of Commerce of America, 1944. Vol. 26. The latest volume of the oldest yearbook in the field of aeronautics.

AYLING, KEITH. *Bombardment Aviation*. Harrisburg, Pa., Military Service, 1944. An account of the basic theory of air warfare.

AYLING, KEITH. *Bombers*. N. Y., Crowell, 1944. An analysis of classes and types of bombers, both Allied and enemy, of this war.

BOND, DONALD S. *Radio Direction Finders*. N. Y., McGraw-Hill, 1944. A guidebook to this special field.

CARLISLE, NORMAN V. *Illustrated Aviation Encyclopedia*. N. Y., New Home Library, 1944. A popular, encyclopedic presentation of simple aeronautical facts.

FLIGHT PREPARATION TRAINING SERIES. *Air Navigation, Part Four, Navigation Instruments*. N. Y., McGraw-Hill, 1944. Another in the series of navigation texts prepared under the supervision of the Aviation Training Division, Office of the Chief of Naval Operations.

GOODWIN, HAL. *Aerial Warfare, the Story of the Aeroplane as a Weapon*. N. Y., New Home Library, 1943. Tactics and techniques of today's air war.

GRIFFITHS, HAROLD. *Mathematics for Aircraft Engine Mechanics*. N. Y., McGraw-Hill, 1944. Practical aviation mathematics organized and presented through everyday jobs.

HARRISON, RICHARD D. *Look at the World, the Fortune Atlas for World Strategy*. N. Y., Knopf, 1944. An air-minded atlas with full-color, large-scale maps.

HOUGH, DONALD. *Captain Retread*. N. Y., Norton, 1944. The personal narrative of an AAF officer of two wars.

LANGEWIESCHE, WOLFGANG. *Stick and Rudder, an Explanation of the Art of Flying*. N. Y., Whittlesey House, 1944. A textbook aimed at those who will be interested in learning how to operate their own light planes after the war.

LEY, WILLY. *Rockets, the Future of Travel beyond the Stratosphere*. N. Y., Viking, 1944. A prediction of what rocket ships may make possible in solar exploration.

MACAULEY, C. B. F. *The Helicopters Are Coming*. N. Y., Whittlesey House, 1944. The potentialities of rotary aircraft.

MANN, CARL. *Air Heraldry*. N. Y., Robert McBride, 1944. The rapidly expanding wealth of AAF insignia.

MCINTOSH, COLIN H. *Long-Range Flight*. N. Y., McGraw-Hill, 1944. A pioneer title in a field of increasing importance.

MIKSCHE, FERDINAND O. *Is Bombing Decisive?, a Study in the Organization and Tactical Employment of Modern Air Fleets*. N. Y., Norton, 1943. An English publication which has recently been made available in this country.

NAIDICH, JAMES, and SCHOR, HARRY. *Air Navigation Made Easy*. N. Y., McGraw-Hill, 1944. The basic elements of air piloting and dead reckoning navigation.

RAISZ, ERWIN. *Atlas of Global Geography*. N. Y., Harper, 1944. World maps supplemented by geographical facts.

SMITH, G. GEOFFREY. *Gas Turbines and Jet Propulsion for Aircraft*. N. Y., Aerosphere, 1944. First published in London, this presents the historical development of jet propulsion.

THOMAS, ROWAN T. *Born in Battle, Round the World Adventures of the 513th Bombardment Squadron*. Philadelphia, Winston, 1944. The colorful record of this squadron's varied experiences.

WILKINSON, PAUL H. *Aircraft Engines of the World*. N. Y., Paul H. Wilkinson, 1944. The revised edition of a basic aircraft engine encyclopedia.

WYNN, EDGAR J. *Bombers Across*. N. Y., Dutton, 1944. A narrative presentation of the work of the ATC in speeding planes and supplies to the combat areas. ☆

ON THE ALERT!

TIMELY ADVICE FROM THE AIR INSPECTOR ★ Administration ★ Supply and Maintenance ★ Operations and Training

Matters presented here are informative only and are not to be considered as directives.

Confidence:

Essential in all flying, confidence is particularly necessary in night fighting. Inspectors can help a pilot gain self-assurance by ascertaining that he is familiar with all his night-flying equipment. The importance of the pilot's knowing the procedure to follow if his radio fails cannot be overemphasized.

Driver's Trip Ticket:

Proper completion of a driver's trip ticket works to the advantage of both the driver and the vehicle user. The speedometer reading, the date and the time of release should be inserted by the passenger and not by the driver.

Stored Vehicles:

Proper care should be taken to preserve and maintain stored vehicles awaiting repairs.

'Shotgun' Plane Inspections:

Maintenance crews who are giving planes "shotgun" or general inspections, no matter whether a 50, 100 or 200-hour check-up is required, should discontinue that practice. To make the proper examination at the right time, crews must use a guide as directed by TO 00-20A-2.

Ingenuity in War Orientation:

American ingenuity is proving to be a major factor in the success of the AAF War Orientation Program.

Examples of this ingenuity noted at Training Command stations are passed along here by the Air Inspector for the benefit of other personnel concerned with war orientation.

Two dummies in Nazi uniform, having a meal outside a tent, added realism to a display of German equipment at Roswell Field, N. M.

Two GI's in Nazi and Jap uniforms toured Deming Field, N. M. They were "under guard" for obvious reasons.

The Orientation Advisory Committee, composed of 12 enlisted men who have seen overseas service in various theaters of operations, is the backbone of the program at Stockton Field, Calif.

The average GI wonders what a coral atoll is like. Laughlin Field, Texas, has the answer in a colorful and informative sand box display in its war room.

A weekly combat forum is conducted at Laredo Field, Texas. Men returned from combat answer student gunners' practical questions about life in theaters of operations.

Clothing and Equipment:

The condition of clothing and equipment of personnel going overseas should never be taken for granted, but should be determined by inspections.

Parachute Check-up:

"Jumping out of an airplane with a parachute is nothing to get all het up about. It is simply the occasion which you have long anticipated and for which you are fully prepared. . . . Now, we'll assume that the harness is correctly fitted and equipment is all in order. If you haven't seen to that before, it's too late to do it now. . . ." These remarks from a British Training Memorandum should start flying personnel thinking, whether in the RAF or AAF. Is your parachute harness correctly fitted and is your equipment in order?

Keeping Informed:

Communications personnel should acquaint themselves with all changes affecting combined communications procedures and cryptographic security. They should see AR 380-5 and the radio and Cryptographic Bulletin issued by the Air Communications Officer. All new AR's, WD Circulars and AAF Regulations should be checked for directives applicable to communications, and AAF Reg. 100-1 should be kept up-to-date.

Gas Masks:

Inspections should be made frequently to see that gas masks fit personnel to whom they have been issued.

Tire Hazards:

Runways must be kept clean. Bolts, valve stems, pieces of tin and other loose material are tire hazards which may result in accidents. (TO 04-10-2)

Mark It Now:

Labeling of clothing and equipment should be a day-to-day process, instead of a rush job just before a unit is ordered overseas. The marking should be done as soon as the clothing and equipment are received.

Photo Refrigeration:

TO 24-1-3 contains a color chart which may be used to determine the proper relative humidity for the storage of sensitized photographic materials as outlined in TO 10-5-1.

Q AND A

Q. *Is the pilot responsible for conducting bail-out drills?*

A. It is the direct responsibility of the pilot to drill his crew in a standard bail-out procedure, including warning and exit signals. Crews, wearing full equipment, should practice making exits while the plane is on the ground. (Pilots' Information File 8-4-2, revised 1 March 1944.)

Q. *Is it necessary to have served a whole year before 7 December 1941 to be eligible to wear the American Defense Service ribbon?*

A. No. The reference to 12 months' service in WD Cir. 27, 1944, as amended by WD Cir. 129, 1944, does not mean that a person must have had 12 months' service between 8 September 1939 and 7 December 1941, but must have entered upon a period of active service for 12 months or longer during that period.

Q. *Prior to July 1943, identification tags were stamped with the name and address of the person to be notified in case of emergency. If the person or address is changed, should the tags be replaced?*

A. No. Metals from which the tags are fabricated are of a critical nature and must be conserved. Sec. V, WD Cir. 223, 1944, provides that tags in the possession of military personnel will not be replaced for the reason cited above, or because a change in Army Regulations has eliminated the former requirement that the tags bear the name and address of the person to be notified.

Q. *Is the name of the emergency addressee still required to be entered on Page 2 of the Soldier's Individual Pay Record (WD AGO Form 28)?*

A. Yes. Relative to Form 28, it also should be noted that under no circumstances will typewritten name, signature, grade or arm of service of any officer appear in the booklet.

Q. *May a pilot use a special check-list instead of the standard list for his plane?*

A. When desired, commanders of air forces, commands, or other AAF activities to which aircraft are assigned may issue supplementary or amplifying check-lists containing such additional material as may be deemed advisable. This is not to be interpreted as authorizing the removal of the standard check-list which must be carried in aircraft at all times. (Par. 7, AAF Reg. 62-2, as amended by AAF Reg. 62-2B, 3 July 1944.

Q. *What disposition is made of files of numbered general orders, bulletins, circulars and memorandums issued by various headquarters in the AAF?*

A. At the completion of a series, normally at the end of a calendar year, one copy of each series, securely bound, will be forwarded to the Adjutant General, attention

of Demobilized Personnel Records Branch, High Point, N. C. (See AR 310-50, as amended by Ch. 8, and WD Cir. 231 1944, for a list of commands required to forward these files.)

Q. *If a command is appropriate to the command of a general officer, should official mail to that command be addressed to the "Commanding General," even though the commander is not a general officer?*

A. To the Commanding General. AAF Reg. 10-2, 31 July 1944, states that "an official communication to an activity is addressed to the 'Commanding Officer' when the commander is below the grade of Brigadier General; otherwise, 'Commanding General' is used." Reference is to the rank of the commander normally in command as established by Tables of Organization, Manning Tables, etc., not to rank of the particular officer who is in command.

Q. *Why does the Army have Warrant Officers?*

A. There have been Warrant Officers in the American naval service since the Revolutionary War, but Warrant Officers did not appear in the Army until 9 July 1918, when they were authorized in the Army Mine Planter Service.

They were authorized in the Army at large 4 June 1920.

Purpose was to render more economical and efficient administration of the larger tactical units in the field by furnishing a class of officers who would be able to perform many of the subaltern duties otherwise performed by commissioned officers, and to provide a means of recognizing the services of enlisted men who had served creditably as commissioned officers in World War I, but who were ineligible for commissioned grades in the Regular Army. Further, Army Field Clerks, civilians with military status who performed much of the clerical work of the Army in World War I, were eliminated by appointing them Warrant Officers.

Warrant Officers are addressed by the title "Mister," they receive the salute and are extended the courtesies due commissioned officers. They may perform those duties normally assigned to junior commissioned officers, for the purpose of relieving commissioned officers of considerable administrative and technical detail. When Warrant Officers are legally assigned to duties normally performed by commissioned officers they are vested with all the powers usually exercised by commissioned officers in the performance of such duties. Some duties that may be performed by Warrant Officers are command of a station, unit, or detachment, when such command does not include commissioned officers eligible to command; Officer of the Day, Prison Officer, Mess and Supply Officer and Adjutant.

Warrant officers may not serve on a court martial, military commission, or court of inquiry; on any board of officers where the conduct, status, liability or rights of a commissioned officer are in issue; as a Claims Officer or Investigating Officer within the purview of AW 70; as Adjutant General, Inspector General, or Judge Advocate of any command. (AR 610-5, and WD Cir. 164, 1943.) ☆

ASSIGNMENT-HOME

(Continued from Page 3)

is still on, and it does not make sense, when the need is great, to waste your training.

What happens if I cannot continue in my MOS? The Classification Section of the Redistribution Station will determine your new MOS. Your civilian background is carefully considered. You will be tested and examined as if you had just joined the service. When your qualifications are determined, you will be sent where you can be best employed or further trained in the job for which you are best qualified.

Can a single engine pilot apply for multi-engine training? A man who expresses a desire to change equipment types may be sent to the Training Command, which is informed of his qualifications and wishes. After careful examination and a thorough study, the Training Command makes the final determination. Changes from single engine pilot to multi-engine training, or vice versa, are infrequent because of the time and energy demanded in the transition and because the man's combat experience does not always apply if he changes from bombers to fighters, or vice versa.

Can a bombardier or navigator apply for pilot training? Yes, if he is not above the grade of captain and is under 27 years of age at the time such training begins.

Can a combat crew member become a pilot? Yes, a combat crew man is given preference in applying for Air Crew Training as pilot, bombardier or navigator. He can put in for it at the Redistribution Station. If he passes his physical examination and medical investigation, and if classification approves, he goes right before a board at the station and is sent out for Air Crew Training.

Can enlisted men put in for OCS? Yes, but AAFPDC, having its own limited quota, cannot send them. However, it can and does pass on recommendations to the next command to which the man is assigned.

Can officers put in for further training? Yes, returnees can apply for higher schools such as the Intelligence School at Orlando, Fla., and the Command and General Staff School at Fort Leavenworth, Kan. Selection depends on your qualifications and vacancies available.

How long do I stay in the Personnel Distribution Command? Ordinarily between one and two weeks. AAFPDC is the clearing house of the AAF. It knows where men with a specific MOS are needed and it knows what manpower is available. In some instances, of course, a man might be permanently assigned to AAFPDC, for like every other Command and Air Force in the United States, AAFPDC is carrying out the War Department's rotation policy and eventually will be completely staffed with returnees.

Will I be immediately returned overseas? Ordinarily, no. AAF policy is that men returned from combat will remain in domestic Commands and Air Forces for a minimum of three months. In the vast majority of cases it has been longer than six months, as it depends largely upon the current military situation.

Where will I be assigned from the Redistribution Station? To one of the four Air Forces in the United States or one of the Commands in this country.

Do I have any choice as to where I am assigned? Military necessity determines assignments. However, returnees are requested to state their preferences. If the demands of the service coincide with the wishes of the returnees, it is often possible to work out an assignment which fulfills AAF requirements and also meets the returnee's wishes.

Are there any exceptions to this choice of station in the U. S.? Yes, there are certain War Department and AAF policies that sometimes make it impossible to fulfill a man's request. For example, a P-38 pilot cannot be stationed on the East Coast since all the Lightnings are now under the command of the 4th Air Force on the West Coast.

Do I immediately take over the job assigned me when I return to my new post? The AAFPDC assigns men to continental Commands and Air Forces according to their MOS. The exact job assignment will be determined by the commanding officer at your new installation. While the AAF recognizes your contribution in combat and the value of your experience, a returnee cannot expect to step into a going concern and immediately take over a key position. As in every other department of life, your attitude, your continuing sense of responsibility, and your willingness to cooperate will be factors in determining your future.

Why must I face the possibility of return to combat? Because the war is still on. You are not finished with combat or with serving your country when you have completed a tour of operational duty. You are returned home to rest, to be rehabilitated, to help in the training of new personnel, and to re-train yourself for continuing, if necessary, the fight against the enemy.

What is expected of the returnee? The highest standards of military deportment and conduct, and a continuing sense of responsibility. It cannot be all take and no give. Returnees more than anyone else in military service are in the public eye. They must live up to the best traditions of the service. They must conduct themselves with the full knowledge that they are an example of the more than eleven million men who are now in uniform.

What would sum up the whole attitude of the AAF? Above everything the Army Air Forces and this Command guarantees the returnee a square deal when he gets home. It will do everything in its power to see that any maladjustments are corrected. Everything possible will be done to get a man a proper assignment. The goal is to place each returnee where he is best fitted to help win the war. ☆

OUR NEW HELICOPTERS

SINCE the AAF accepted delivery of its first successful helicopter, the Sikorsky XR-4, in the spring of 1943, three new models have been added to our whirligig family.

The most unusual design among the newcomers is that of the Platt-LePage XR-1, a twin-rotor craft weighing 4,800 pounds. Far from being ready to appear in quantity, the XR-1 is just coming out of the experimental stage. Its conventionally shaped fuselage has tandem seats with sliding canopies and the bottom of the compartments is of transparent plastic. The high stabilizer and rudder empennage of the tail are similar to those of the normal airplane tail assembly. There are no elevators.

At each end of the pylons, which project from the fuselage like wings, is a three-bladed rotor, each blade approximately 15 feet long. These rotors neutralize torque by rotating in opposite directions, thereby eliminating the need for the tail rotor used on the Sikorsky-type helicopters.

A 450-hp Pratt and Whitney radial engine powers the XR-1. Although ordered earlier than the first experimental R-4, the XR-1 was not successfully flight tested until the summer of 1943.

An improved version of the original R-4 helicopter has been designated the R-6. The "Six" looks like an oversized squash gourd with rotors and wheels. The square corners of the R-4 have been eliminated in its successor. A small nose-wheel protects the plexiglas nose of the craft. Other new materials used in the R-6 include a paper-based cowling that encloses the engine and rotor shaft. The cabin is constructed of plastic impregnated glass fiber cloth. The slender tail cone has a covering of tough magnesium skin.

Powered with a 245-hp Franklin six-cylinder horizontally-opposed engine, the R-5 has a top speed in excess of 100 mph, a normal useful load capacity of approximately half a ton and can climb to 5,900 feet in less than seven minutes. Evacuation litters can be installed on each side of the fuselage. Pilots and observer sit side-by-side.

The R-5 helicopter is the big brother of the "Six." In configuration the craft resembles the R-6 and R-4 helicopters, having one main three-bladed rotor and a vertical tail rotor. The main rotor is the largest ever built, measuring 48 feet across the disc. The R-5's nine-cylinder air-cooled Pratt and Whitney engine develops 450-hp.

Fuselage of the R-5 measures approximately 40 feet from nose to tail. It is built in three sections. The center section, supporting the engine, is made of welded steel tubing, cowled with plastic-impregnated molded plywood. The tail section is a wooden monocoque cone to support the tail rotor. A long shaft atop the cone's exterior is geared to the engine for turning the solid wood, seven-foot blades of the vertical rotor. The nose section is an aluminum alloy channel superstructure mounted on an aluminum monocoque floor. This forward section houses the plexiglas-enclosed cabin.

The R-5 has a conventional landing gear. The observer sits in the nose with the pilot directly behind him. Stick and rudder controls are dual. Space is available for cameras, radio accessories and other auxiliary equipment in cockpits. Four litters, two on a side, can be carried by the R-5. ☆

ON THE LINE

A MAINTENANCE ROUNDUP PREPARED IN COLL[illegible] AIR SERVICE COMMAND AND TECHNICAL INSPECTION DIVISION, AIR INSPECTOR'S OFFICE

The Straight and Narrow: The clop-clop-clop of GI shoes on wing to fuselage fillet will bring about cracking of fillet or elongation to attaching holes. Men performing maintenance will contribute to plane's aerodynamic cleanliness by staying on the walkway. According to URs, damage is especially noted on P-40s, P-47s and P-39s. In the case of P-38s, walking willy-nilly on fillets instead of staying on walkways will cause damage that results in severe buffeting of tail surfaces at high speed.

B-17 Goes 124 Missions: Because a crew chief just wouldn't give up, a B-17 of the 15th Air Force completed 124 combat missions and even then, instead of being retired to the boneyard, was put out to pasture, performing training flights.

The plane was "Bachelors' Delight" and the persistent crew chief was Sgt. Waino W. Matilainen of Gardner, Mass.

"It's just Matilainen's pigheadedness that's keeping that 17 in the air," a fellow crew chief remarked after "Bachelors' Delight" returned with two engines shot out from the 123rd mission.

The ground crew worked night and day changing those two engines and when the battle order was announced for the July 19 raid on an ordnance depot at Munich old "Bachelors' Delight" was on the list. And she roared down the runway and soared into the air like a co-ed instead of an old lady with 1,010 combat flying hours.

That afternoon the plane came back, apparently in the best of health, and settled gracefully on the end of the runway. Then, just as it looked as if it was a cinch for mission No. 125, her landing gear folded and the plane skidded on her belly to a stop.

Sergeant Matilainen was sad but philosophical; he had wanted the 17 to do 150 missions. Although the plane had probably set a record in the AAF he wasn't going to see her dumped into a salvage yard to become parts for, in his opinion, less worthy aircraft. By next day he had surveyed all the damage and obtained a favorable decision: after two new engines and two new props, as well as some patches on the underside, she would fly away to honorable retirement in training flights.

" 'Bachelors' Delight' is one of the best any aircrew ever flew," Matilainen allows. "She only turned back three times during the first 105 missions. I'll bet there's not another plane in the AAF that can top that. Sort of a shame to think she won't go sailing through those flak puffs anymore with her machine guns chattering away at enemy fighters."

Sergeant Matilainen praises the airplane. But the Group engineering officers all agree it was the crew chief's superior maintenance that guided "Bachelors' Delight" into the ranks of airplane greats.

Sweat and Sand: This is the story of 18 mechs and an officer who look back from where their heavy bombardment squadron is now stationed in Italy to an ordeal during the Tunisian campaign.

The episode began when orders came to their squadron sending all available aircraft and flying crews to man them to a landing strip deep in the sandy wastes. Two ground men were assigned each airplane to keep the nine B-24s in flying condition during operations, which were to be for 72 hours.

Operations began and within a very few hours the big bombers started their attacks on enemy-occupied Greece and Crete. Maintenance men began their work when the Liberators returned from the first mission, and a heart-breaking routine of replacing parts, repairing damages and reservicing with gasoline, oil and oxygen got underway. The work went on all night with flashlights, causing eyestrain and severe headaches, as the only illumination. The men stood on ladders far into the night until their legs and feet became numb—but still the work went on.

When the heavies took off in the early morning, the grimy mechs and Capt. E. A. Peterson, Logan, Utah, would drop where they stood, sleeping the few precious hours the bombers were gone. Those whose planes were grounded for repairs would work on.

After "Bachelors' Delight" *had completed 123 missions over enemy territory, Sgt. Waino W. Matilainen, chief, watches as Sgt. Yue Lee, waist gunner from San Francisco, paints a big 123 on this 15th Air Force Fortress.*

This, then, was their schedule for the expected three days, and at the end of this period the men eagerly expected to return to their established base. Reluctantly, Captain Peterson told them operations were not yet complete and they must remain for a few days more.

So the weary mechs kept up the pace for eight days—and nights. And on the ninth morning the good news came. They were to return to their base. Six missions had been flown in the eight days.

Hats off to these eighteen mechs of the AAF for their remarkable job: M/Sgts. Robert J. Otis, Jr., George T. Wiston, Lawrence W. Wall, Victor J. Renzi, Warren P. White, Chester L. Swisher, William M. Gray, Mims M. Windham, Edward S. Galosky, William W. Winter and Henry D. Albright; T/Sgts. Arthur E. Lustenberger, Rupert J. Reed and Abraham Tabankin; and Sgts. Charles L. Rambo, Guy E. Hilderbrand, Robert M. Gohl and Elwood C. Diehl.

Ingenuity in the South Pacific: Compressed air has so many uses on an aircraft fighter repair line in the combat zone that men of a 13th Air Force Fighter Command P-39 squadron got tired of running compressor units up and down the line—not because the mechs and engineers were lazy but just because a lot of time was wasted. So American ingenuity went to work.

Two DeVilbiss compressors were hooked together with a Briggs and Stratton four-cycle gasoline engine salvaged from a burned out C1B generator for the power drive. Instead of using a hand-starter with a rope operating off a pulley, an aircraft engine starter energizer with a foot pedal starter attachment was hooked on.

Not having a double pulley for driving both compressors, or any pulleys with the proper size outside diameter or one to fit the engine shaft, one was made by taking cast aluminum fittings from wrecked planes, melting them and pouring the aluminum into a handmade mold built from a one-gallon paint can; the pulley was then machined on a shop lathe, even to cutting in a keyway.

Using old hydraulic and oxygen line tubing from salvaged aircraft, more than 150 feet of air tubing were installed from the compressor to the six shops on the line. Pressure to all points in the line can be maintained at from 90 to 125 pounds.

T/Sgt. Robert E. Hooper, Scottsville, N. Y., formerly an American Airlines engineer, devised this centralized air compression system which has saved many hours on the combat line. The ingenious pulley was made by T/Sgt. Frank Miko, South Bend, Ind., an ex-machinist with Bantam Bearings.

WHAT'S WRONG WITH THIS PICTURE?

When properly installed on airplanes, the wheels, like music, go round and round. But if maintenance procedures were off base, and a loose nut falls from the brake shoe when the pilot comes in for a landing, the airplane is likely to go into a ground loop when pressure is applied to the brakes. It means Joe On-the-line slipped up on his job. The correct way to install a wheel is directed in AN 03-25B-1. The men who lent a hand to posing the boners this month are (left to right) Sgt. Frank R. Flaherty of 4100 AAF Base Unit and Sgt. R. E. Weaver and S/Sgt. C. W. Colegrove of 4000 Base Unit, Patterson Field, Ohio. They can point out seven boners. Do you find more?

TURN THIS PAGE UPSIDE-DOWN FOR THE ANSWERS

1. You on the left, Buddy, appear rather concerned. Could it be that you know it's poor practice to set that can of oil on the brake block? If it gets oily, the block will have to be changed. Installing the drum on an oil-soaked block means that unsatisfactory brake operation with chattering and seizing will result. The brake block will slip until it gets warm, then it becomes gummy.

2. Next on this wheel examination, the bolts on the brake shoe assembly are in backwards. If the cotter keys come out (and, incidentally, we don't see any), the nuts become loose, fall into the wheel and bolts fall from the brake frame. A nut rolling around in the wheel may wedge a brake. These bolts require checking at 25, 50 and 100-hour inspections. Bounce the boners shown here by following TO 01-20EF-2 and AN 03-25B-9.

3. It's a good idea to cover the threads on the axle when installing the wheel; the bearing race may damage the axle threads. FASC has devised a metal cap, which gives necessary protection to the threads. Use of tape or other approved methods will suffice.

4. Grease on the floor is a give-away on bad maintenance. It will deteriorate the rubber when contacting the tire; in addition, it is a slippery hazard for men working. Check TOs 04-5-10 and 04-10-2.

5. Bearings and rings on the floor are liable to pick up dirt. Lay parts on a clean surface, preferably a parts truck. TO 29-1-3 will tell you all about it.

6. The brake drum is not properly cleaned. If that is paint still on the drum—and it looks like paint—it must be removed before the wheel is installed. Otherwise, when the wheel rotates, the paint will gum, and the brakes will lock when pressure is applied, possibly causing the airplane to swerve dangerously. Check TO 03-25B-9.

7. The man behind the tire is really giving it goldbricking support. His position is insecure and that goes for the tire, too. The wheel should be placed against a solid object; the man is exposing himself to rupture should the wheel overbalance. When available, cradles should be used to bring the wheel to the axle for installation.

Coconut Bombing

By Lt. Col. Howard S. Ellmore

CO of a Light Bombardment Group in the Southwest Pacific

WHAT is coconut bombing, you'd like to know? Well, just strap yourself to a fast-moving A-20 and we'll see if you get the idea. All set? Let's go.

We take off and proceed to the target—anywhere from zero to 500 feet. Five hundred feet is just about the beginning of the stratosphere as far as attack bombing is concerned. We buzz toward the enemy at speeds varying from 250 to 300 miles per hour. The objective in this case is an area target on Awar Point. We come in, three or six planes abreast, and at a thousand yards we cut loose with our .50 caliber guns. As we go across the target, a two-ton bomb load drops from the bomb bay. Seconds later we are speeding away from the target, closing bomb bay doors and looking back to see smoke and debris mushrooming into the air. That's all there is to it. The whole attack lasted perhaps half a minute.

What did you see? Well, you saw exactly what you might expect to see while moving at a speed of 300 miles an hour right on the deck. You saw the tops of a lot of coconut trees. That's all. Hence the term "coconut knocking."

Did we do any real damage? Photographs taken from the airplane at split-second shutter speeds reveal much the human eye cannot see. They show overturned vehicles, scattered supplies, an occasional three-inch gun, here and there a smashed Jap hutment. However, the wily Japs are past masters at concealing supplies under the trees, and even the camera misses a large part of the damage done.

Coconut bombing is a type of attack which has not been particularly popular with combat crews because they cannot see what they are shooting and bombing. The question naturally came up as to how much damage this type of bombing was actually doing. Finally the chance came to settle the matter once and for all. Ground troops had occupied the area around Hansa Bay, where our Bomb Group had flown about a thousand sorties, expending a million and a half rounds of ammunition, dropping a thousand tons of bombs. This was the chance we had been waiting for. A picked staff of intelligence officers, consisting of Capts. Jerome A. Adams, George M. Green, Felix D. Lewis and 1st Lt. Roy R. Woods, were dispatched to the Hansa Bay area by PT boat the day after it had been occupied. Their mission was to assess the actual damage done in this area. Let Captain Adams, who headed the intelligence officers, tell you the story.

"We left our base at noon and headed for Hansa Bay and a new phase of air force intelligence. During the trip up the coast, the skipper of the PT was very congenial, and in no time at all we were swapping tales of recent exploits. He even permitted each of us to take a turn at the wheel, which was pretty broad-minded of him.

"We landed just before dark near a bombed jetty in Hansa Bay. As we stepped ashore, we were aware of a putrefying odor which is difficult to describe. The stench of decomposed flesh, decayed food, and rotten supplies permeated the entire area. Shoes, sneakers, clothes, and medical supplies were strewn all over the place. We contacted an Australian intelligence officer, and he informed us that the American Naval intelligence officer, who had been one of the first intelligence officers on the scene, was camped about one mile inland.

"It was getting dark fast, and we were worried about a place to sleep. The Naval I.O. said that he could give us a shack, and suggested that we hunt through some of the Jap huts down the road for a mosquito net, as the insects were unbearable. With the aid of a flashlight, we crawled through filthy huts littered with debris until we found a net that wasn't torn. I might add that a Jap mosquito net is a huge square, capable of sheltering eight to ten men. We headed back for camp, but on the way someone remarked that there would be no sleeping under such a dirty thing, and without further ado, we threw the net away.

"We found the Naval I.O. and six men getting ready to turn in for the night, and they suggested that we set up some Jap stretchers that were lying around to use as beds. Setting up a Jap stretcher is a feat in itself, and I imagine that the most wounded Japs 'kick the bucket' before they

ILLUSTRATED BY
CAPT. RAYMOND CREEKMORE

ever arrive at a first aid station. That night we slept on the stretchers raised about three inches above the floor and fought bugs all night, to say nothing of the rats, which had grown fat eating unburied Jap corpses.

"The next morning we rose early and headed for Condor Strip, where we saw tons of food which had been shot up by the strafing. Boxes of medical supplies of every description and huge stacks of rice were strewn throughout the area. Every hut presented the same sight. Debris scattered in every direction. As for food, there were case after case of canned fish, tubs of dried fruit (similar to our dried apricots), mountainous tins of tea, cocoa and biscuits, which looked very much like dog biscuits. These piles were shattered by bomb bursts and holed by machine gun fire to such a degree that they were entirely unusable. Not a case—not a tin can could be found without one or more .50 caliber bullet holes in it. In front of one shack we found the strut and tire of a B-24 and an American parachute that had been perforated by machine gun fire.

"Everywhere was desolation and destruction. Around the edge of the strip and in revetments we found one Tony, two Helens, one Oscar and five unidentified planes, all of which were literally bombed and shot to pieces.

"Throughout the area we inspected many underground shelters that were extremely well built. Some had as many as five logs piled one on the other and covered by vines that made observation from the air virtually impossible.

"Cutting back to Awar Plantation, we saw bomb craters filled with equipment and supplies. The Japs use this method of destroying much of their equipment when they are forced to vacate an area. The bomb craters usually have stagnant water and filth in the bottom of them. When forced to retreat the Japs throw equipment, which cannot be taken with them, into the bomb craters to prevent use by the Allies. One crater in particular held at least 100 balls of thick rope, bales of barbed wire and at least fifty kegs of nails. This sight was prevalent throughout the entire inspection. Being a native of the Hoosier State, I was surprised to find not a few lawnmowers stamped 'Made in Indiana.'

"Making our way back to our base, we met five natives, four of them youngsters in their early teens. Captain Evanson, who spoke Pidgin very well and had spent the last 15 years on the island, asked them a few questions. What they told him confirmed previous estimates of the Japs' condition prior to their withdrawal. They had been bombed and strafed until they could no longer eat, although apparently plenty of food was in the area. They couldn't bury their dead; they dared not come out of their holes.

"One little native boy in his very best Pidgin gave a description of the strafing and bombing attacks. 'Pella b'long bird he come along now. Rat-tat-tat-tat! Boom-boom-boom!' Then in pantomime he illustrated how he lost no time crawling for the bush.

"Nothing in the entire area escaped destruction. Even two Geisha girls—one middle-aged, one young—had been victims of the relentless attacks. One had a leg blown off and the other had been killed by a .50 caliber bullet. They had been given a decent burial by Allied troops.

"Of more than 100 trucks found, only two appeared serviceable. In addition to many unburied Japs, a graveyard of over 400 was found, their deaths undoubtedly caused by our strafing attacks.

"We were glad to learn that the propaganda leaflets we had dropped had served their purpose. Very few of the natives in the area had aided the Japs and most of them had moved out of the coastal area and back into the hills.

"It is difficult to estimate with pencil and paper the damage done by the coconut attacks we carried out against the enemy. His nerves shattered by constant bombing and strafing, unable to eat, sleep, work or cope with our repeated raids, he had to give up his Hansa Bay position.

"He was forced to do this without pressure from the ground forces, which made it truly an air force show. This damage was wrought with a loss of very few airplanes and combat crewmen."

It all adds up to one inescapable conclusion. Coconut knockers pay off well and will continue to pay off well in the Pacific theater. ☆

A ground reconnaissance party checks up on what low-level bombing and strafing do to a Japanese Southwest Pacific base

FLYING SAFETY

Suggestions from the Office of Flying Safety, Headquarters, Army Air Forces, in the interest of accident reduction

These items are for educational purposes and are not to be construed as directives.

Look Twice Before You Leap—A pilot and his crew of 10 bailed out of a B-17G near Sioux City, Iowa, one night recently when they thought the No. 3 engine was on fire.

While the crew members were having a tough time of it on the ground—seven of them were injured when they landed on the rough terrain—the bomber flew on automatic pilot for more than 100 miles and made a neat belly landing on the side of a hill.

Investigation failed to reveal any evidence of fire around the engine or any other part of the plane. It developed that the pilot, acting on the copilot's word, had ordered the crew to jump without taking a look for himself. When the fire was first reported, the pilot had just applied full power to climb away from another plane that was dangerously close. What appeared to be fire was probably the turbo torching after the sudden application of boost.

The pilot's face was redder by far than the No. 3 engine.

Removing a Tow-Target Hazard—Standard parachute riser webbing has been used successfully by 3rd Fighter Command as a substitute for steel cables in an effort to eliminate the dangers resulting from severed cables in tow-target practice.

In one test 35 missions were flown using the webbing as a cable. No breaks occurred although 42 holes were shot in the webbing. Any one direct hit probably would have severed a steel tow cable. At installations where the webbing was used, pilots had no fear of running into free targets, and they were assured of a count on their hits because the targets were returned intact.

The Air Service Command is preparing a Tech Order on the use of webbing for this purpose.

Blocking the Glare in AT-6s—To eliminate glare from cockpit enclosure frames and panels which has been a constant headache to AT-6 pilots, Air Service Command recommends that the surfaces be painted with black camouflage enamel, color No. 604, specification AN-E-7. No TO will be issued but the manufacturer is making the change on late models.

Shot in the Arm—If instructor pilots in the B-17 school at Hobbs (N. M.) Army Air Field grow lax in latest teaching techniques, they must attend a 12-day refresher course to bring them back to par.

The base has established a standardization squadron made up of the six best instructors on the field, all graduates of the Bryan (Texas) Instrument School. Each expert instructor handles two instructor-students.

All phases of four-engine training and teaching habits are covered. The classes have improved efficiency of both instructors and trainees.

Mock-up for practice ditching sessions closely duplicates conditions of actual water landings.

Practice Ditching! Realizing the vital importance of constant drill in proper ditching procedure, many airbases have constructed ditching stages and mock-ups for practice sessions. In a number of instances scrap materials and ingenuity are being combined to good advantage in developing practice facilities.

At the Dyersburg (Tenn.) Army Air Field, for example, a stripped B-17 fuselage has been installed in a water-filled revetment so that training crews receive ditching instruction under conditions closely approximating those encountered in actual water landings.

Barksdale Field, La., has mounted a junked B-26 on an underwater platform placed in an artificial pond. A mock-up of a B-17 fuselage has been the practice stage for ditching drills at the AAF Tactical Center for some time. The mock-up was installed in a small lake.

At many bases where such facilities are not available, drills are conducted on dry land with regular airplanes and raft techniques are practiced in swimming pools or convenient ponds.

Airplane commanders, who are responsible for teaching ditching procedure to their crews, are being constantly reminded that good ditching habits are an investment in safety insurance.

Flying Status Flags—Colored flags mounted on B-24s in the 15th Bombardment Operational Training Wing indicate the flying status of individual airplanes. The 10 x 10-inch banners are placed in the pyrotechnical pistol mount in front of the top turret. A red flag indicates that the plane is out of commission, yellow shows that the plane is OK but needs servicing and no flag tells the pilot that the plane is in commission, fully serviced and ready to fly.

Brakes Versus Torque—Regional safety officers at a midwestern training field using P-47s found that many tire failures on take-off were caused by students riding the right brake to correct for torque. Tubes were blowing out because of excess heat generated in the brake drums. The situation was corrected when trainees were taught to use rudder instead of brakes to keep their take-off runs straight.

Cockpit Comfort—A sun shield to protect the heads of ferry pilots of fighter aircraft has proved to be an effective weapon against heat exhaustion, dizziness, nausea and headache. Pilots found that long range flights under a hot sun raised cockpit temperatures to a highly uncomfortable degree. Many of them have made sun shields of cardboard,

painted on the outside with silver paint and on the inside with green. The shield is attached to the inside of the canopy, over the pilot's head, with masking tape.

Training Stimulant—A clever communications device is in use at Westover Field, Mass., to ease the monotony of a Morse code refresher course. A mural depicts a life boat at sea with a rescuing airplane flying overhead. Arranged on the life boat and plane are lights which flash dot and dash messages during practice sessions for radiomen to maintain their speed and accuracy.

Safety Reminder—As a constant reminder to line and flying personnel at Minter Field, Calif., three flags are used to advertise the field's daily flying safety status. A red flag flown on the flight line indicates a fatal accident, yellow a non-fatal accident, and green signifies a 24-hour accident-free period.

Survival Training—Idle hours are turned into valuable safety indoctrination time at Mather Field, Calif. The personal equipment officer demonstrates proper ocean survival technique to convalescent patients from the station hospital. Using the post swimming pool as a theater, the PEO shows men how the one-man life raft, Mae West and other emergency equipment should be used by survivors when airplanes have to be abandoned over water.

Tower Noises—Tower operators at a southern training base had difficulty understanding voice communications because engine tests and run-ups were conducted on the apron at the base of the control tower. This hazard to safe operations was removed when the CO ordered such activities to be performed a safe distance away. ☆

Answers to Quiz on Page 18

1. (C) Eastern Air Command
2. (D) 141.7 feet
3. (C) Nearest to his home
4. (A) True. AR 605-115, 17 June 1944
5. (A) June 2
6. (B) General Henry H. Arnold
7. (A) C-47s 8. (D) 1,500
9. (C) Radiator shutters
10. (C) A life boat dropped for rescue purposes
11. (D) Six 12. (C) Guadalcanal
13. (A) B-26 14. (C) $4,000
15. (B) 90-100 mph
16. (A) Five
17. (C) The Marianas and Japan
18. Liaison planes.
19. (C) Adak 20. P-63

PICTURE CREDITS

FIRST COVER: T/Sgt. Roger Coster, AIR FORCE Staff. 2: AIR FORCE Staff. 4: Boeing Aircraft. 6: North American Aviation Corp. 12: Time, Inc. 17-26: Boeing Aircraft. 31: Frederic Lewis and OWI. All other illustrations secured through official Army Air Forces and Signal Corps sources. Requests for prints of photographs for official use and publication appearing in AIR FORCE should be directed to the AAF Photographic Library, Headquarters, AAF, Washington 25, D. C.

OFS SAYS:

(Safety officers of the Office of Flying Safety are veteran flyers. These reports include comments by these veterans on recent accidents. Read and heed.)

CORNING, IOWA—A C-47, with the pilot, copilot and two passengers aboard, clipped the side of a hill and slithered to a stop on its belly after the pilot buzzed his home town. Four people received minor injuries and the airplane burned.
OFS COMMENT: Although no one was killed in this crash, it wasn't the pilot's fault. His infractions of regulations and common sense: He had left local flying area on a local clearance, flown over a town at less than 1,000 feet, buzzed his father's barn at less than 200 feet and maneuvered his plane dangerously at a low altitude. Obviously the pilot had little regard for the safety of his own life or those of his passengers. If this type of accident is to be stopped, perhaps even stiffer penalties for violations of regulations must be imposed.

SANTA MARIA, Calif.—Both engines on a P-38 became overheated and lost power. The plane burned after the pilot made a wheels-up landing.
OFS COMMENT: The engines overheated because coolant flaps were closed. When the automatic coolant control fails to work, the pilot must use the manual control to bring engine temperatures back to normal. Although this pilot had more than 35 hours' instruction in P-38s he admitted he didn't know where the manual coolant flap controls were located. On top of that, he had plenty of time to make a normal landing on the runway if he had called for an emergency. Instead, he flew until the engines became too hot to produce power. If pilots are to fly safely, they must know their equipment, then exercise good judgment while using it.

ESTRELLA, CALIF.—A P-70 pilot brought his airplane in so hot that he ran out of runway, washed out the gear on an embankment and left just enough of the plane intact to be surveyed.
OFS COMMENT: It's the same old story. A hot pilot with too much vanity to go around and make another attempt. The cost: A perfectly good night fighter forever lost to the AAF.

HILLSBOROUGH, FLA.—A P-51 towing a target for other P-51s had to have its wing replaced after it was hit by a .50 caliber slug from a fighter making a pass at the target.
OFS COMMENT: The pilot making the pass was entirely responsible for this near-disaster. His pass was made at about 10 degrees from the track of the target, and he was so close that he had to shove the stick forward to avoid hitting it. At that point, the shot was fired inadvertently. Passes made at less than 20 degrees from the target's path can be plenty dangerous to the tow-target plane, almost as dangerous as a loose trigger finger on a pilot who has no intention of shooting.

MINTER FIELD, CALIF.—Both engines of a UC-78 quit at the same time. The pilot was forced to make an emergency, wheels-up landing causing major damage to the airplane.
OFS COMMENT: This candidate for entrance into pilot's heaven was obviously thinking about everything except flying his airplane. After the landing, it developed that he had turned his fuel selector valve to "OFF" instead of to "LEFT" as he had intended. Never trust your sense of touch when changing controls. Make a visual check and be safe.

VICTORIA, KAN.—The landing gear on a P-40 retracted on the landing roll causing major damage to the propeller, fuselage and gear.
OFS COMMENT: On his approach, the pilot extended the gear and made the usual visual check of the pop-ups on the wings. He did not check with the hand hydraulic pump to make sure the wheels were locked. Pop-ups only indicate that wheels are down. The hand pump test is the only way to be certain that wheels are locked. It is worth the trouble to check.

FARMINGDALE, N. Y.—A pilot on take-off detected puffs of white smoke coming from under the cowl flaps of his P-47 and turned back to the field for an emergency landing. Leveling off about 20 feet over the runway, the plane dropped in for a hard landing. The landing gear, fuselage and wings received major damage.
OFS COMMENT: Previous and subsequent flights in P-47s proved that the pilot's ability to handle the ship was excellent under normal conditions. However, under the stress of an emergency the pilot's technique went to pot. A bit of clear, rational thinking would have saved many dollars and man-hours of repair work.

GAUSE LANDING, N. C.—A P-47 pilot on a gunnery mission made a belly landing on the beach after his engine failed. The airplane was a complete loss because salt water covered it before it could be moved to high ground.
OFS COMMENT: Flying on his auxiliary tank, the pilot cut the throttle to keep his place in formation. When he gave it the gun again there was no response.

After the crash he checked his tanks and found the auxiliary dry, but the main tank contained plenty of fuel. At the first indication of engine trouble, No. 1 check should be to see if the engine is getting gasoline. ☆

CROSS COUNTRY

THE War Department plan for partial demobilization following the end of the war in Europe calls for: selection of men to be released as individuals rather than by units; priority of release to enlisted men on a basis of time in service, overseas duty, combat record and dependents; release of officers on a basis of military necessity; movement of AAF combat groups and supporting ground units from all over the world to Pacific areas; release by the AAF to be slower at first than by the Ground Forces; as replacements become available from the Ground Forces and from new inductees, release by the AAF proportionate to the Ground Forces.

The demobilization plan is deliberately complex to achieve maximum fairness. The above is merely a sketch of the plan.

☆

The AAF is making a study of all its present officers to determine who are best qualified to hold commissions, either Regular Army or ORC, in the postwar air force and to learn which ones are interested in continuing in service after the war. Pending decision on the strength of the postwar Army, this survey will enable the AAF to commission the number of officers authorized to it without the confusion that would result from unplanned and hurried selection.

☆

The first military helicopter training school has been established by the AAF at Freeman Field, Ind.

☆

Establishment of the Air Technical Service Command (the redesignation of the recently created AAF Materiel and Services), with Lt. Gen. William S. Knudsen as director, combines under one administrative unit all activities and operations formerly assigned to the Materiel and Air Service Commands. Its functions are grouped under these general headings: materiel and production facility resources; research and development engineering; production, quality control and modifications; procurement; contract termination and property disposal; traffic and transportation; supply; maintenance training of tactical service units.

☆

The special Balkan air force established to arm, feed and give combat support to patriotic resistance groups in the Balkans is based in Italy under administrative command of MAAF and includes American, British, Polish, Italian, Yugoslav and Greek flyers.

☆

Recent transfers of general officers include the following command assignments: Lt. Gen. Millard F. Harmon, commander of Army Air Forces in Pacific Ocean Areas; Lt. Gen. Lewis H. Brereton, commanding general of the First Allied Airborne Army; Maj. Gen. Hoyt S. Vandenberg, commanding general of the 9th Air Force; Lt. Gen. Delos Emmons, commanding general of the Alaskan Command; Maj. Gen. R. LeG. Walsh, commanding general of Eastern Headquarters, USSAFE; Maj. Gen. Curtis E. LeMay, commanding general of the 20th Bomber Command; Brig. Gen. William D. Old, commanding general of the I Troop Carrier Command; Brig. Gen. Lauris Norstad, chief of staff of the 20th Air Force; Maj. Gen. J. P. Hodges, Assistant Chief of Air Staff, Intelligence; Brig. Gen. F. H. Smith, Jr., a Deputy Chief of Air Staff.

☆

American factories are producing heavy bombers at the rate of about 1,500 a month, according to figures recently released.

☆

Medals of Honor have been awarded the following: 1st Lt. William R. Lawley, Jr., pilot, of Leeds, Ala.; 2nd Lt. Walter E. Truemper, navigator, of Aurora, Ill.; T/Sgt. Forrest L. Vosler, radio operator, of Livonia, N. Y., and Sgt. Archibald Mathies, gunner, of Finleyville, Pa., all of the 8th Air Force. The awards for Lieutenant Truemper and Sergeant Mathies, members of the same B-17 crew, were made posthumously.

☆

Presidential citations have been awarded the following AAF units for operations against the enemy covering actions from April, 1943, to July, 1944. The units, dates and actions:

301st Bombardment Group	April 6, 1943	Bizerte
44th Bombardment Group and Headquarters 66th, 67th and 606th Bombardment Squadrons	May 14, 1943	Kiel
99th Bombardment Group	July 5, 1943	Gerbini airfield, Italy
325th Fighter Group	July 30, 1943	Sardinia
82d Fighter Group	August 25, 1943	Foggia
1st Fighter Group	August 25, 1943	Foggia
82d Fighter Group	September 2, 1943	Cancello marshalling yards
1st Bombardment Division	January 11, 1944	Central Germany
325th Fighter Group	January 30, 1944	Villaorba airdromes
2d Bombardment Group	February 24, 1944	Steyr, Austria
97th Bombardment Group	February 24, 1944	Steyr, Austria
301st Bombardment Group	February 25, 1944	Regensburg
451st Bombardment Group	February 25, 1944	Regensburg
307th Bombardment Group	March 29, 1944	Truk
14th Fighter Group	April 2, 1944	Ballbearing works in Austria
96th Bombardment Group	April 9, 1944	Pozwan, Poland
31st Fighter Group	April 21, 1944	Ploesti-Bucharest area

CHINA COMBAT

(Continued from Page 25)

part of Changsha was reduced to rubble in a series of heavy assaults by Liberators and a score of other towns, used as storage centers and garrison billets, were leveled.

The second prong of the gigantic Jap pincers, moving north up the railroad bed from Canton, was given the same treatment of dive-bombing and strafing.

With the coming of good weather the Japanese air force reappeared over the front. In air battles over Hunan and low-level attacks on Japanese fields, 141 enemy aircraft were destroyed during July and early August, with 65 probably destroyed. While the American fighters tangled with the Oscars and Tojos by day, Mitchells ran nightly low-level missions to the Jap fields at Pailochi, Hankow, Wuchang and Canton.

By the middle of August the main enemy effort in Hunan was devoted to clearing the clogged supply lines. Fighter sweeps by day and Mitchells prowling by night had finally made the river route too costly. In an attempt to offset this, the Japanese put thousands of engineer troops and conscripted coolies to work repairing the roads in their rear, and turning the old railroad into a motor highway. Bridges were repaired and many new pontoon spans were hastily thrown up, but Mitchells bombed the new bridges and fighters strafed and bombed truck columns moving down the new roads from Yochow to Hengyang. When the Japs confined their movements to the hours of darkness, a pathfinder Mitchell leading flights of fighters would drop flares to illuminate the roads for fighter attacks on the truck convoys.

As a result of this action, the Japanese advance remained bogged down for some time in the rice fields outside Hengyang while the drive north from Canton, which was nearing Kubong, ebbed back toward the south. Jap plans for a quick junction of their northern and southern armies had been interrupted by American bombs and designs for closing the railroad gap and driving the 14th Air Force from its eastern bases were at least temporarily delayed.

In the Honan campaign, along the Yellow River front, the Japanese relied on the speed and weight of their armor and the lack of American airbases within range of the front for quick success. This plan was based on quick, deep penetrations across the flat wheat fields, cutting up the Chinese army into segments for annihilation, then pushing on west after the Hankow-Peiping railroad had been taken, to capture Sian and drive a wedge between Communist and Nationalist China.

By a miracle of movement and yeoman service by Lt. Col. John W. Williamson's battered transports, advance units of the Chinese-American Wing were established at Chinese Air Force bases by the time the Japs swarmed across the Yellow River in April. American and Chinese pilots of Colonel Morse's command have been in action against them continuously during the spring and summer despite bad weather, meager supplies and poor base facilities.

In the north their targets were motor pools, truck parks, columns of scout cars,

tanks and truck-borne infantry and artillery. There again, rockets and 75s were effective in knocking out tanks, half tracks and artillery positions. Frag bombing and low-level strafing stalled many a motorized thrust racing across the plains. But the Japs, unrelenting, regrouped their forces and pushed on.

In both the Hunan and Honan campaigns the Japanese achieved their first objectives—occupation of Changsha and Hengyang and closing the gap in the Hankow-Peiping railroad—despite heavy losses inflicted by the 14th Air Force. In their ultimate goal of closing the Hankow-Canton railroad, occupying American airbases in east China and driving a wedge between the Communists and Nationalists, the enemy is making determined progress despite valiant Chinese resistance and available air support. In both campaigns air attack has reduced the speed of Japanese drives and given demoralized Chinese troops the confidence to attempt stabilization of the fronts.

In southern Yunnan, the third campaign, American air support has enabled Chinese troops to execute their first successful offensive since the beginning of the Sino-Japanese war. The Japanese in southwestern China have been thrown back from their positions along the Salween River, from which they menaced American airbases in western China and the vital air supply route from India, and have been driven back to the border of northern Burma.

Air action also has been responsible for keeping the Chinese advance supplied with food and ammunition and denying some of the entrenched Japs access to their own supplies. Transports have dropped hundreds of tons of supplies to advance Chinese units which otherwise would be dependent upon the trickle of coolie-borne supplies over almost impassable trails. In attacking the enemy supply lines, Mitchells have bombed and burned many important Japanese supply bases in northern Burma, started landslides along the important Burma Road that closed it to truck and mule traffic for weeks at a time, while fighters have bombed and strafed supply columns from Lashio to the front.

Since the start of the Salween offensive, the one bright spot in the total scene, Chinese forces have narrowed the gap between the Yunnan forces and the Chinese under General Stilwell at Myitkyina to less than 40 miles, and secured territory vital to the opening of the Ledo Road from India to China.

Yet, with all our supporting attacks and localized victories, the conflict in China remained tilted in favor of the Japanese. On September 5, the Japs had resumed one of their most decisive offensives, and it appeared that if they succeeded in driving to Kweilin and Liuchow, they would eliminate our bases at these points and Lingling. If they continued to French Indo-China they would lop off the entire eastern section of China.

All factors considered, the war for the Chinese was brightened only by the prospects that eventually enough Allied strength would be brought up to throw the enemy out, and by the long view that ultimate victory was beyond doubt. ☆

In This Issue

Lt. Frances L. Sandstrom, 24, a flight nurse from Opportunity, Wash., is the girl on our cover this month. Heaven sent her to us, via ATC. Assigned to the trans-Atlantic air evacuation run, Lieutenant Sandstrom happened to be in New York City for a day of sightseeing after making five flights into France and thirteen Atlantic crossings since D-day. We were looking for somebody very pretty, as usual, and when we saw Nurse Sandstrom walking toward a telephone booth in the Hotel Commodore lobby we did a tight lufberry around her until she agreed to be photographed and tell her story. Our photographer, T/Sgt. Roger Coster, was on furlough, but we snatched him back by phone. The lieutenant was modestly without her ribbons at the time, so we borrowed a European one from a major in the editorial department and sent a staff artist speeding out to buy an American ribbon. Coster then began firing long bursts on his Rolleiflex, murmuring "ees wonderful. Boy! ees wonderful." (He's a Parisian. Did 19 months in the French Army.) After the usual studio shots, the photographer decided to make one outdoors. That is the picture used on the cover, taken on the roof of 101 Park Avenue, home of AIR FORCE.

☆

Five members of our staff in recent weeks have left for parts known and unknown as overseas correspondents for AIR FORCE, and you will be reading their stuff as we go along. Somewhere in France with advanced AAF units we have S/Sgt. Mark Murphy, who before the war was on the staff of NEW YORKER magazine, now working to keep us up to date on developments of what at press time was the fastest moving war theater. Covering USSTAF operations from Britain (by the time you read this probably from France) is Maj. Charles Frazer, back to the ETO on his second tour of overseas duty for us. Slated for a stop-off visit with the Mediterranean Allied Air Forces in Italy is Capt. Larry Bachmann, not long removed from a seven-month tour in the Pacific, who will move on to the China-Burma-India theater. In the Pacific we have Maj. Herb Johansen and Capt. Manford Susman. For some last minute cabled dispatches from our overseas men see Pages 4, 12 and 38.

☆

Capt. Bob Hotz, author of the article on 14th Air Force operations, page 24, is a former member of our staff and of the staff of the old Air Forces News Letter, which preceded AIR FORCE. Not long ago he helped bring a B-25 back to a China base after its pilot had been shot up during a low-level attack. Hotz, an intelligence officer, was serving as gunner on the mission. Although not a rated pilot (he had once fooled around with Cubs and Link trainers), Hotz climbed into the cockpit (there was no copilot on the mission) and did a lot of flying on instruments with the plane all shot up, until the pilot could again take over. More recently, he was a member of a crew which had been shot up during a low-level attack, had to bail out from 14,000 feet at night.

☆

Returning in an early issue will be the cartoon page of Capt. (you knew him only as Lt.) William T. Lent. The page was held up this month for revisions which should give it more prominence.

☆

New features this month include "Rendezvous" on Page 1, which gives every one of you the chance to become a contributor to AIR FORCE through your letters. Space limits us somewhat, but we'll try to print all letters which appear to be of general interest. As we have reminded you on our back cover message this month, how about sending in your comments, criticisms and ideas?

☆

Another new feature is "The Library" on Page 53. Here each month, through the cooperation of the AAF Technical Library Service, we will keep you posted on the new books on air subjects which are available through the Service.

☆

In this and forthcoming issues "Shooting the Breeze" will be found on the page facing the inside back cover. This feature is meant to be everything the name implies—a kind of tall story club with branches all over the globe. Many of the tales are gospel truth, others make us wince a bit. We appreciate the items that are being sent in for "Breeze" and urge the rest of you to jot down those stories you tell and hear and send them in. We think they deserve to be told through AIR FORCE so everyone in the AAF can hear them.

☆

Thanks to Lt. Winsor H. Watson, Jr., writer, and S/Sgt. Ray Scheiber, photographer, both of the PRO, 36th Street Airport, ATC, Miami, Fla., for preparing the feature "Pearly Gates," Page 21, to S/Sgt. Hoite Agey of the same unit for his contributions to the article "Our Pigeon Air Force," Page 36, and again to Sergeant Scheiber for his photos accompanying that article.

☆

Lt. Col. F. L. Moseley, author of the radio landings article, Page 41, was largely responsible for perfecting and putting into operational use the type of equipment covered in his article. He accompanied the first experimental sets to Britain and conducted demonstrations so successful that they led to the adoption of the equipment by the AAF and RAF in Britain.

☆

Incidentally, boys, those two lovelies you observed in the PASS IT ON "advertisement" on page 63 of the September issue were, seated from left to right, Miss Jean Welch and Miss Frances Westcott, both of the John Robert Powers agency, N. Y. C. ☆

Pretty Lt. Bernie Manning who is, of course, from Hollywood, makes life as pleasant as life can be in Assam, India. GIs refer to this area as "Panty Alley." Reading right to left: panty girdle, stockings, GI panties, Lt. Manning, long underwear pants.

FLIGHT NURSE (Continued from Page 30)

months a flatiron in a man's house gave him a better line than etchings ever did.

"We would go on ironing dates," the girls explained. "Keeping our clothes neat was our toughest problem at first. We had water three times a day—for a couple of minutes each time—and that was all. We could always wash our clothes in the river but we couldn't iron them because we didn't have electricity at that time. The fellows did, so we'd take our clothes over to their place and spend a quiet, domestic evening at the ironing board. Oh, no, they didn't mind—too much. Said it lent a homey touch to the place."

Nurses in most of the Pacific theaters fly an average of about 80 hours a month. One month a girl spent 118 hours aloft in her evacuation plane. Flights usually average four to eight hours' flying time. And the long over-water hops are not made easier by the turbulent atmosphere usually encountered in that area, or by the possibilities of enemy attack on a heavily loaded, unarmed plane.

One thing impossible, however, is to get any flight nurse to admit there's anything heroic—or even difficult—about the job she's chosen. In the first place, she'd say there isn't time to think about herself and on evacuation missions this is literally true. Looking after 24 men whose care has been entirely entrusted to one woman is a full-time job. It permits no thought of comforts left behind.

Always her patients come first. It's up to the nurse to care for them, make them comfortable and see that they arrive at the destination in as good physical condition as expert nursing care can assure. And where air travel is concerned, that means being prepared to cope with the unexpected. Several months ago, the plane on which Lt. Dorothy Shikoski was flight nurse was forced down at sea. In the crash Nurse Shikoski's back was seriously injured. Yet, with no thought for her own comfort, she helped her patients into life rafts, cared for their wounds and attended them constantly until they were picked up.

Once an evacuation plane is airborne, the cabin becomes literally a hospital ward with the nurse in charge. "Routine nursing care," it is called but any man evacuated by air knows that it's more than just watching symptoms, changing dressing, giving plasma or bringing out the morphine syrette when she sees fists clenched in silent pain. It's more than adjusting the splint on a native's leg, or treating an Australian for "shock," or asking the pilot to descend slowly so that a too-sudden pressure change won't make a tank man's condition worse.

Maybe it's a lot of little things—like the subtle way she has of keeping a boy's mind off fears of losing his injured leg. Or the manner in which she calms a fellow's nerves when she can see how jumpy he is about taking his first flight. Or the way she asks "Wouldn't you like a cup of chocolate?" "How about a cigarette, sergeant?" "Here are some books" or "Here's a new game we picked up on the last flight." Maybe it's the fact that, busy as she is, she still has time to talk.

Or it could be her smile, her calm efficiency and the way she keeps everything under control. Amazing women, these airborne nurses, how they keep up the hard, tiresome flights month after month in every climate of the globe. A patient's own troubles begin to be forgotten in admiration for the nurse aboard his plane—and the hundreds of other nurses just like her.

Call it nursing care, call it building morale, call it anything—the flight nurse's sincere desire to help and comfort her patients, her warm spirit and friendly disposition have won for her the same high accolade on every battle-front where American soldiers are fighting: "Geez, isn't she wonderful!" ☆

AIR MASTERY OVER EUROPE

(Continued from Page 5)

the whole period USSTAF bombers maintained their pummeling of German airfields in France, Germany, the Low Countries, Italy, and the Balkans.

Meanwhile the 9th Air Force, the RAF 2nd Tactical and the Mediterranean Allied Air Forces were giving strong tactical support to the advances of the land armies. In their desperate dash northward from the Falaise sector the Germans were bombed and strafed into one of the worst traffic tie-ups in the history of the world. For miles vehicles were jammed bumper to bumper in hopeless congestion on main highways and in the surrounding maze of country lanes. Toward the end, the Germans were trying to withdraw in daylight, an act of desperation in itself.

German prisoners, pouring into Allied hands through these hectic weeks, testified to the psychological effect of AAF and RAF operations. They revealed not only the terror of bombardment but the critical shortages of food, ammunition, water and fuel that directly resulted from it. The gasoline shortage had become acute and nobody knows how many Nazi tanks were blown up by their crews when they had no more fuel. Infantrymen on the so-called "holding front" had gone without food for five or six days in some cases—and nothing could have told them so well that their cause in France was *kaput*.

Not the least of AAF exploits during the Battle of France was the flying of equipment to the Maquis. For weeks B-17s of the 8th Air Force were secretly dropping red, yellow and white parachuted bundles to rendezvous points in the valleys, hills and plains of France. They delivered an astonishing total of more than 90 percent of these cargoes and never perhaps were guns, ammunition and supplies put to more effective use. As France was liberated, in town after town sobbing men and women swarmed happily into their sunlit squares to sing *La Marseillaise* once again. The victory was deservedly shared by the French Forces of the Interior.

In early September the enemy's situation was still deteriorating, but the Nazis had something left. The Luftwaffe had put into action their ME-262 and other jet and rocket-propelled aircraft. These planes had been met in combat and were known to be extremely fast, possibly good, weapons. The Germans had reserve ground forces and strong defensive positions. But that they could recover from their many disasters or make a stand on the Western Front for long was unlikely. ☆

FIGHTER CONTROL

(Continued from Page 7)

excited," he said, "they see something new and they want to bust it up right away, so you always have to tell them to make positive recognition if they're anywhere near our troops. The words 'positive recognition' make them think a little bit and, lots of times, keep them from hurting somebody. They get so damned excited when something's going on they chatter at each other, and sometimes it's our business to cool them off a little."

The pilots Major Cody was talking about usually fly a squadron out for two or three hours and, as they start to return, another squadron of their group meets them. They come home, refuel, bomb up, load the ammunition boxes and go out again. Thus, one squadron is always kept over the target, and the pilots handle one, two or three missions a day. Sometimes their orders are to bomb and strafe a certain column or a big gun emplacement. Sometimes it is armed reconnaissance on the group leader's discretion. Often it is armored or troop column support. In the latter case, the control often passes from the formal direction of the control tent to the column. Each column has an air officer with it to direct the supporting planes. They get there by 1-50,000 or 1-100,000 maps, but once overhead they can be directed by larger scaled maps.

"Gun emplacement on K-1534 is holding us up," the ground officer may radio.

"Roger," says the squadron leader, and some planes dive down and the emplacement is no longer any difficulty.

"Enemy antitank gun around the corner ahead of your drive, hold up a moment," the aircraft may radio, and the column slows down while P-47s dive out of the sky and rake the gun. It's teamwork. Often a column with a nice open road and no Germans in front of it has no use for air support at the moment, and it will release a squadron. The squadron calls back to fighter control for some targets, and if there are none the planes may go out on armed recon looking for targets on their own.

Then, of course, there is the problem of aircraft numbers. The 9th may be the largest air force in the world, but it doesn't have all the planes in the world and quite often a priority target will dominate a day's procedings. Orders from the command may say that under no circumstances are planes to be diverted from the job laid out. On that day, a division may be pinned down by enemy guns located in a position that only air power can knock out easily. The division may call for help and be told there simply are no planes to send to it. On such occasions, the controllers don't feel too happy when they have to say to the Army liaison officers who transmit the requests for help, "Sorry, you'll have to wait your turn."

One of the little adventures they like to talk about around fighter control is that of the *Handy Foot* squadron some weeks ago. *Handy Foot* was on armed recco and spotted a column of tanks quite near some American positions. The controllers told the squadron to make positive identification and two planes dived down, winged over and the pilots looked right out at some crosses on the tanks.

"My God, I'm looking right in the muzzle of an 88!" one flyer yelled into the radio. Planes of *Handy Foot* thereupon knocked out the front tanks in the column and then the back ones. The Germans couldn't move either forward or backward. The controllers sent over more planes; *Handy* briefed them and went home to reload. All that day, there was no moment when there were not planes bombing and strafing the column. By nightfall, 128 tanks had been claimed destroyed. On other occasions, flights of Messerschmitts may see American formations fly past them placidly. Minutes later, another formation of American planes will dive out of the sun and have a field day with the unsuspecting MEs. Such meetings are arranged by fighter control on information from planes, radar installations, ground observers and other means.

As the system operates here—complete with air warning personnel, filterers, tellers and large tables on which all planes in the vicinity are plotted—fighter control in the 9th is a logical offensive development of the air defense network protecting the coasts of the United States when hostile air attack threatened. The original cadre of this fighter control squadron came from the Seattle Fighter Wing.

"God, how we miss the Bell Telephone Company," a Signal Corps communications man commented. After several of its men had been trained at the fighter control school at Orlando, Fla., the unit moved to England, and from there directed interceptions and dispatched the fighter cover for 8th Air Force attacks on Germany.

Fighter control in those days had to get planes to a certain spot at a certain second to relieve others which were running low on gas. The controllers had to get them there and get them back. They tell how Lieutenant Russell talked to a pilot lost over the Continent with his compass shot out. Lieutenant Russell brought him home by the sun, vectoring him with such advice as, "Turn eight o'clock to the sun. Now turn so the sun is at three o'clock."

All chief controllers here are pilots and know how a flyer feels. Maj. Carl Geiss, one of the top men in the outfit, got a DSC at Bataan and later, with the late Lt. Col. Boyd Wagner, trained fighter pilots and served as a test pilot in the perilous days in Australia when the Philippines fell.

The controllers have a profound respect for weather and for Allied antiaircraft batteries. Weather officers are consulted almost every hour, and toward dusk a close check is kept with the antiaircraft liaison officer in case any of our planes are still up. On the Sunday of the Mons incident one squadron didn't come in until dark, and probably for the first time that day there was an air of tense excitement in the room. Communications were tied up but the controllers finally broke in so that AA batteries could be told to hold fire until all friendly planes were down. At night in combat zones, the burden of proof that one is friendly rests with the airplane.

Shortly after dark, that Sunday, Brig. Gen. James W. McCauley, commanding general of a fighter wing, entered the tent. He had been looking things over at a new control set-up. This day fighter control had been using alternate equipment and a larger unit was being installed some miles away. Fighter control is continually moving its units, leapfrogging across France and Belgium toward Germany The general was told about the diversion at Mons and, with a couple of executives, he consulted the map. He pointed to a spot which was many miles from the place where we were. Then he traced the various places where the fighter control center had been located, from the spot a few miles back of the beach where the tent had been set up under fire from German snipers and artillery. The unit had waited off shore on D-day. There had been too much going on for them to risk taking their valuable equipment ashore. The next night, however, they had taken it in and installed it at a location which hadn't yet been captured. There had been other moves since, and more were to come. Major Cody turned to me and said, "It's a shame that things were so quiet here today"

Things may have been quiet in the tent that day, but they weren't quiet at Mons.

Our fighter-bombers, directed by control, destroyed more than 900 trucks and 775 pieces of horsedrawn equipment that very pleasant Sunday. ☆

SHOOTING THE BREEZE

Burma. Naga headhunters lived in a tantalized state for several weeks after AAF planes began appearing in their skies. They could never get close enough to determine the size or temperament of the winged creatures. The great question in Naga society became, "Where do the warbirds sleep?" They seemed rather big to roost in trees. The Nagas sent a scout on the long trek to an AAF airbase in Assam, and there he found the answers to all his questions, including the biggest surprise that the smallest of the warbirds had wings six spears in length. He was so thrilled and amazed that the commanding officer of a fighter group asked the native if he wanted to take a ride.

The visitor was insulted. "The Nagas," he said haughtily, "are law-abiding people. It is not our custom to go up in the air."

England. On D-plus-1 the British Broadcasting Company went about its job with such unrelenting casualness that it almost itself got blitzed. At a flight-control station on the coast nerves were still sharp. Plotters were tensely tracking aircraft across the channel and up and down the Cherbourg Peninsula. Fighter controllers were still vectoring their planes over Very High Frequency radio to targets on the beachhead.

About that time the BBC made itself heard. With newly stepped up transmission, it beamed out in the direction of the in-

vasion, booming into the control station's VHF. One of the controllers was brought up short by conversation on his headset that was distinctly not R/T. "Hello, Marlborough, Marlborough, is that you?" said an agitated voice. "There's something wrong with our VHF. All we get is some girl singing 'Everything I Have Is Yours'." A moment later, more furious—"Can't we get that damned boogie-woogie off the air?" And from the second rabid controller: "Blow it up! Vector somebody over there and tell him to hit it!" Fortunately for BBC, they found a better way.

Sicily. When Lt. Robert I. Graetz was forced to ditch his A-36 in the Mediterranean, his back-pack dinghy sank and he swam for 13 hours before dragging himself exhausted upon a beach. The first Americans Graetz met were two MPs. One warned him gravely that he was out of uniform. No necktie. The other cautioned Graetz of the dangers which might befall him while going without his helmet.

Hawaii. Pvt. Glenn Bricker of Philadelphia cooks for a colonel on an island base. Finishing breakfast one morning, the colonel left his office, and Bricker began tidying up around the place. When he progressed to the colonel's bedroom, he decided that a little nap could do no harm. His next contact with the warring world was the colonel, irate and noisy beside him. "What's this?" the officer roared, although it was pretty apparent that the private was asleep in his bed. "Sir, I must have been tired," Bricker mumbled. Then his mind began to click. "I worked far into the night on some custard pies," he added. The colonel's voice had softened noticeably as the private got to his feet. "Those pies had better be good," he said. They were, and the case was closed.

At Sea. The story goes that a Navy PBY in Dumbo service, a highly esteemed sea rescue organization, spotted a man adrift in a raft and immediately set about to pick him up. They flew over him, but the man did not look up or wave the usual greeting. They knew he was alive, however. They could see him moving his arms, busily employed with something in the water. The PBY landed and taxied toward the raft, whereupon the man began waving them away and motioning for quiet. The rescue crew, who could see the flyer's Army wings and khaki shirt, thought he must be suffering from shock or the heat. When they pulled alongside his raft, the man got highly indignant. It was then they noticed that he was using his emergency tackle and had already caught one fish. At the moment he was after something really big, and didn't want to be rescued just yet. He preferred, he said, to wait for the *next* Dumbo. Rather patiently, the PBY pilot explained that while Dumbo service was dependable, it didn't run quite so regularly as a commuter's train. Reluctantly the AAF man got aboard and the Dumbo took off.

P. S. We don't believe this either.

Italy. Latest to attack the AAF institution of flying pay is an organization of Fifth Army GIs who wrote: "Having crawled through all the mud and dust in Italy, we want extra pay for NOT flying."

France. One of the basic distinctions between permanent and temporary rank was recently clarified by Maj. John L. McGinn of Long Beach, Calif., a Mustang squadron leader. That afternoon the major had been diving on an ME-109 when an imperative voice blurted in his radio, "Get away from there! Don't shoot him! He's mine!" The major pulled up and one of his pilots, 1st Lt. John R. Eskridge of Elmore City, Okla., dived down and destroyed the German. Upon returning to his base Major McGinn jokingly pointed out Eskridge as a man holding the permanent rank of lieutenant.

U.S.A. This account deals with the first paratrooper ever born in a parachute. The fact that it was a pigeon paratrooper only slightly dims the lustre of the tale. It seems that men who train birds at the AAF Tactical Center in Orlando, Fla., make certain that no novice pigeons are sent overseas. The ones selected as pigeon paratroopers have already completed advanced flight training and are known to be sturdy, dependable birds. They are given practice jumps until they can hit the silk like a stunt jumper. Their complete composure was demonstrated recently when a container of three birds was lost after being dropped. Four days later the pigeons were found, unruffled but hungry. They had eaten part of the straw flooring of their container, and in one corner the female of the party had laid an egg. When hatched, that little pigeon won't need to ask his daddy what *he* did in the war. ☆

Two officers in the Aleutians gossip over their clothesline on wash day. All men are obliged to do their own laundry on this particular island.

KEEP IT CLEAN!

Saturday night happens, no matter where. Maybe it takes scheming, but Americans get their baths, and keep clothes clean.

French, Italian and German salvage went into this washing machine which was designed and built by members of 12th AF Service Command stationed in Sicily.

This outdoor bath and laundry has a personalized touch. And from the unwelcome signs about the place one gathers that the GI hopes to keep it that way.

No Roman bath for Cpl. Howard F. Evans, with a bomb squadron in southern Italy, but a very serviceable tub made from that highly adaptable article, the oil drum.

Dear Editor

HOW ABOUT HEARING FROM YOU?

We keep telling you things—how about you telling us? We need comments, suggestions, ideas. Do you have an AIR FORCE story or an idea for one? A combat sidelight for SHOOTING THE BREEZE? A maintenance tip for ON THE LINE? Send 'em along. Don't worry about literary style, if you've got it—fine, if not, just submit the ideas and the facts. If you've got a squawk about AIR FORCE, let's have that too. Direct communication is authorized. Address your contribution or your letter DIRECT to the AIR FORCE Editorial Office, 101 Park Ave., New York 17, N. Y.